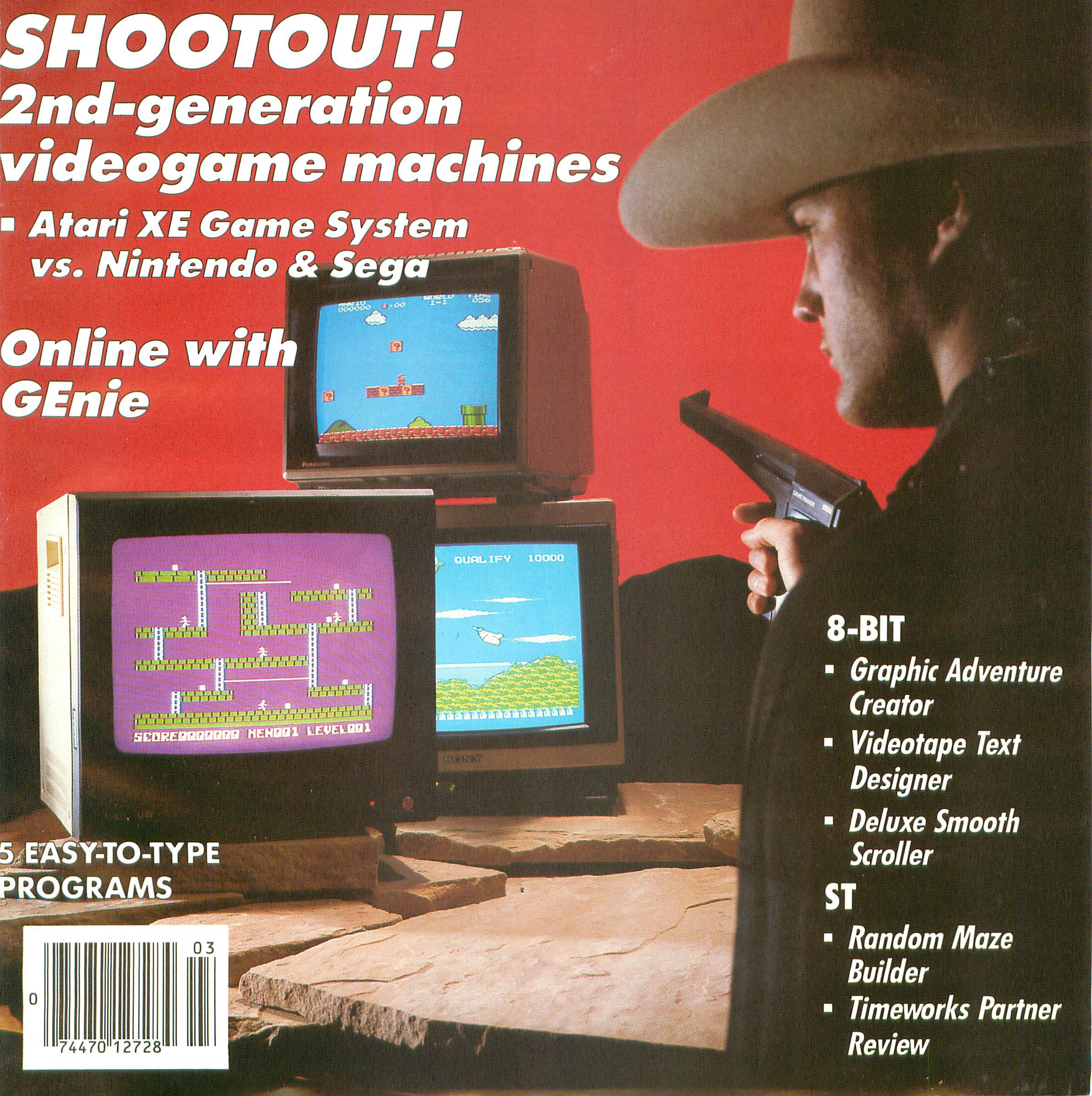
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The ATARI Resource

MARCH 1988 VOLUME 6, NUMBER 11



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2nd-generation videogame machines

- *Atari XE Game System vs. Nintendo & Sega*

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5 EASY-TO-TYPE PROGRAMS

8-BIT

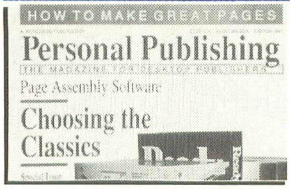
- *Graphic Adventure Creator*
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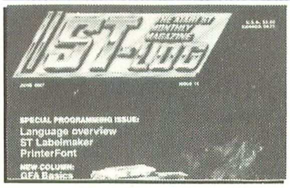
- *Random Maze Builder*
- *Timeworks Partner Review*

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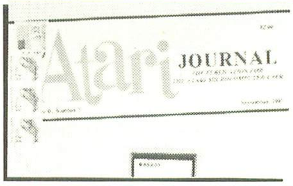
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1987 - Expanding Scenery disk coverage; East Coast, Japan, & Europe



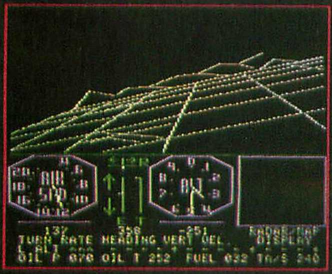
1986 - Flight Simulator II for the 68000 computers



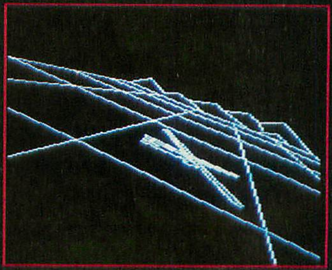
1985 - High-performance Jet flight simulator for the IBM, Commodore 64, and Apple II computers



1982/1983 - Microsoft Flight Simulator & Flight Simulator II



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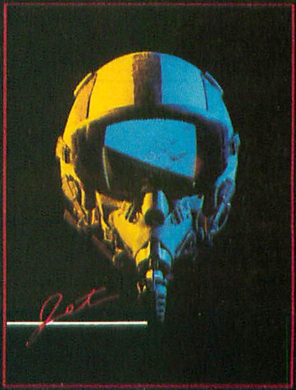
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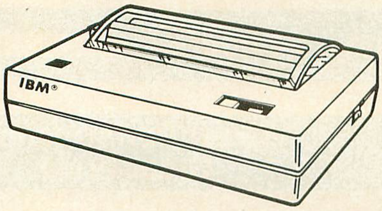
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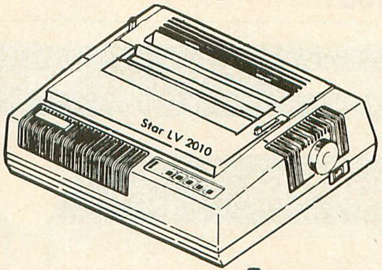
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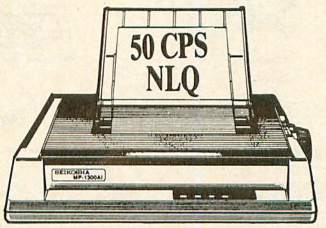
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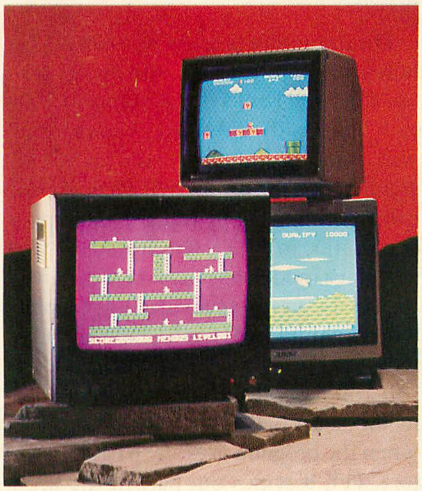
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FEATURES

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Antic

The **ATARI**® Resource

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March, 1988, Volume 6, Number 11

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Editorial submissions should include text and program listings on disk and paper. Submissions will be returned if stamped, self-addressed mailer is supplied. **Antic** assumes no responsibility for unsolicited editorial material.

IO Board

PROMPTER PRAISE

I'm a one-man broadcasting department with the task of teaching college students "real world" radio and television production. *Antic Prompter* (October 1987) helps me improve this level of instruction without raising costs. As a result, I have been able to convince my department that an Atari 130XE, a 1050 disk drive and a printer would be a valuable yet inexpensive asset to our department—even though it's *not* made by IBM.

Do you know of any other Atari 8-bit programs useful for cable television or other broadcasting? And are there any educational grants to institutions utilizing Atari computers?

Paul Summitt
Alderson Broaddus
College
Philippi, WV 26416

MORSE MAYHEM

Our thanks to lawyer David Rogers of St. Maries, Idaho and physician Marc Mugmon of Columbia, Maryland for spotting inaccuracies in Morse Code Trainer *(**Antic**, December 1987). These two amateur radio operators point out that recent changes in the Federal Communications Commission Novice license DON'T include dropping the requirement that Novice operators must be able to send and receive Morse code at five words per minute.*

*Also, it seems that **Antic** misspelled Atari in Morse code. It should read* "•— — •— •—• ••"—ANTIC ED

XL RAMDISK WARNING

Another XL RAMdisk (**Antic** Tech Tips, November 1987) can totally destroy a program you have in memory. Worse, using a program can destroy the files on the so-called RAMdisk.

What that set of instructions really accomplishes is an override of the normal protection mechanisms of the RAMDISK.COM program. That is, it forces DOS 2.5 to believe tht it is running on a 130XE. In fact, I think step 4 (the L-load of RAMDISK.COM) can be accomplished more simply by pressing [RESET]. When RAMDISK.COM loads and runs, it discovers that the machine is not a 130XE and quits, but it quits via a call to DOSINIT, the same routine that is called when you press [RESET].

The important point here: DOS 2.5 believes it is using a 130XE and proceeds to use the extra banks (located from $4000 to $7FFF) as the RAMdisk. Ummmm. . . wait a minute, this is actually an 800XL. *What* "extra banks"? Well, DOS doesn't care. It is quite happy using that memory from $4000 to $7FFF as its RAMdisk. Now let's run a moderately big BASIC program. Or let's use any program that uses Graphics 8 or 15 plus Player/Missile graphics. Or. . . well, you get the idea.

If you have saved some data in a "file" in the supposed 800XL RAMdisk, then when the program uses any part of $4000 to $7FFF, it wipes out part of the RAMdisk. Or if you go to DOS after writing a program that uses that memory area, you can save a file and wipe out your program.

We're grateful for this warning (from a well-known software developer who requested anonymity) about potential data-loss problems when the 101-sector XL RAMdisk is used with larger BASIC programs or P/M graphics. The method does work fine with smaller programs. This RAMdisk is intended mainly as a temporary expedient that might be useful during BASIC programming sessions, since the RAMdisk set-up must be typed in every time it is used.—ANTIC ED

MIDI IN BASIC

Please help me find information on programming MIDI in ST, True or GFA BASIC. I've tried to access the MIDI ports in ST BASIC, but have had no luck. I want to send and receive sequence data (from the on-board sequencer of my Ensoniq ESQ-1 digital wave synthesizer) and patch system-exclusive data to the 1040's internal disk drive.

Jeff Jewson
Minneapolis, MN

TWO FOR EA

I recently received a response from Electronic Arts President Trip Hawkins regarding the deplorable shortage of Atari 8-bit software. He told me how EA couldn't make any money on Atari software, citing poor sales among other reasons. However, if you look at the programs that EA released for the Atari, you'll see that they're low-quality. Products such as Mail Order Monsters, Financial Cookbook and Racing Destruction Set aren't worth spending the postage on, let alone $20. Come on EA, give us Skyfox and your other great programs that will be worth the cost to you *and* us.

Jeff Yonker
Chicago

Trip Hawkins, I understand that you're reluctant to give us more Atari software because nobody buys your current EA products. However, what do you expect when you port over mundane, boring and low-grade software to the Atari? It's just not worth the money. Don't expect to win over Atari users until you provide Atari versions of your best software.

Eric Jensen
Barksdale AFB, LA

MICROTHANX

I wish to express my appreciation to **Antic** for publishing Steve Roquemore's review of Turbobase in the December 1987 issue. MicroMiser will continue to fully support the Atari 8-bit, due largely to the impetus generated by this excellent review.

Steve Bolduc
MicroMiser Software
Orlando, FL

***Antic** welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

Send letters to: Antic I/O Board, 544 Second Street, San Francisco, CA 94107.

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Your goal in Entrepreneur Jungle is to achieve a personal net worth of a billion dollars before enforced retirement. Your Atari is your broker and at first you only have enough money to buy shares in relatively small firms. However, as your net worth, skills and political influence grow, you'll have many more options.

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Your March 1988 Antic Disk—featuring Entrepreneur as well as every program in this issue—will be shipped to you within 24 hours after receiving your order. Just phone Toll-Free to the Antic Disk Desk at (800) 234-7001. The monthly disk is only $5.95 (plus $2 for shipping and handling) on your Visa or MasterCard. Or mail a $5.95 check (plus $2 shipping and handling) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107.

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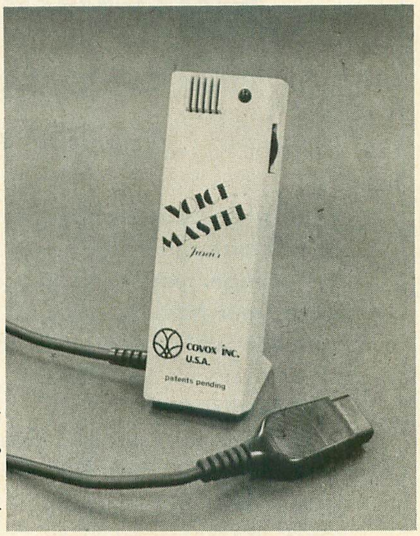
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Mary Rhomberg Lavery

which can be saved to disk—and incorporated into BASIC programs for playback without the Voice Master Junior attached. Up to 32 words or phrases can be used at once, with others accessible from disk.

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Strategic Simulations, Inc.
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Mountain View, CA 94043
(415) 964-1353
$39.95, 48K disk
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Using the award-winning game system from Gettysburg: The Turning Point, **Sons of Liberty** re-creates the American Revolution battles of Bunker Hill, Saratoga and Monmouth. Changes to the system include more emphasis being placed on line and column movement, with 100-yard map squares used because of the limited firing range of muskets.

FIREBIRD MID-RANGE

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Firebird Licensees
71 North Franklin Turnpike
Waldwick, NJ 07463
(201) 444-5700
$24.95, 48K disk
CIRCLE **262** ON READER SERVICE CARD

Firebird Licensees, best known for The Pawn, are now shipping high-quality recreational software with broad appeal for computer gamers of all ages. Atari 8-bit titles so far are **Silicon Dreams** and **Jewels of Darkness**. Both cost $24.95—a price that belies the lavishly illustrated packaging.



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Call to Wargames

Reviews: Borodino, Battle Cruiser, Guderian and Mech Brigade

Reviewed by RICH MOORE

GUDERIAN

Guderian is a challenging simulation of the German Blitz across western Russia in 1941. The German player must capture several key locations, fighting the Soviet player *and* the clock, just as General Heinz Guderian did 46 years ago. The huge, untrained Soviet army requires constant leadership in order to perform.

The game runs for 12 turns covering two days each. The simple graphics do a good job of representing Soviet key positions—clear areas, forests, rivers, lakes, railroads, etc.—which the Soviet player can use to move forces. The German player cannot use the railroads, but can cut them to slow Soviet reinforcements temporarily.

Guderian plays well despite some rough edges. Your thumb gets a good workout on the joystick button, and the symbols on the map are the same whether or not the units there are all the same type, so you must keep track manually. Games are all saved under the same filename, so you'll need several disks. However, other quirks actually seem to contribute to the simulation of the chaotic problems faced by the Germans and the Soviets.

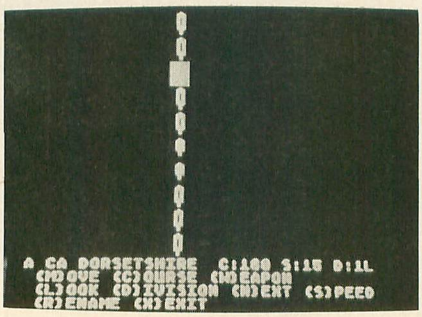
$30, 48K disk. Avalon Hill, 4517 Harford Road, Baltimore, MD 21214. (800) 638-9292.

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BATTLECRUISER

Battlecruiser, featuring surface naval combat in the European theater, actually contains *two* complete gaming systems, each with a 79-ship database and four historical scenarios. For World War I, British and German ships square off in your customized scenarios, or you can replay three historical battles. The World War II disk pits the British and French against the German and Italian navies. Historical scenarios include the engagement off Cape Teulada and the daring transit of the Scharnhorst, Gneisenau and Prinz Eugen with their escorts up the English Channel from France.

Battlecruiser's two command modes are a good simulation of the way naval forces are actually controlled. The OTC (Officer in Tactical Command) deploys his ships in divisions according to the expected



threat, then maneuvers these *groups* of ships as the situation develops. While the group and ship commanders are responsible for executing the OTC's general plan, the Admiral usually directs the actions of individual units when things get hot.

You can build a game from scratch—thus extending Battlecruiser well beyond the eight games in the package—and overhaul any of your ships into juggernauts that would dwarf the largest real battleships. However, you can't have more than 20 ships on each side and you can't modify a saved game. Custom maps, on grids of 60×60 1,000-yard squares can be saved separately and used later.

The graphics aren't great, but this quickly becomes secondary to the combat situation, which the commander actually tracks and assesses in his mind.

$59.95, 48K disk. Strategic Simulations, Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353.

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BORODINO

Borodino is a real challenge, unless you stack *all* the options against the Russians. As Napoleon, you must do *everything* right, or you'll see what appears to be certain victory turn into a rout of the French forces—not unlike history.

In the village of Borodino, about 60 miles west of Moscow, the battleground is fairly small, roughly five-and-a-half miles square. Eight scenarios are provided, ranging from single engagements between elements of the two armies to the complete three-day battle. Six choices have the historical orders of battle and deployment of forces. Two others are variations on history, with the benefit of hindsight.

The unprotected software works with virtually any DOS and density. Games can be restarted or restored any time without rebooting. The map is a smooth-scrolling, 36×37 grid of 275-yard squares. Forces begin as divisions, but can be divided into regiments and battalions. Infantry can be stacked in "divisional" units up to 6,300 men, but French stacks are limited to units belonging to the same corps.

There's plenty of clear ground, but most of the terrain slows down the *Grand Armee.* Units can "charge" the enemy if the terrain is favorable. Borodino requires planning and the

continued on page 14

Empowering the 8-Bit

Reviews: The Expander, Fleet System 2

EXPANDER

The **Expander** is a replacement operating system for expanded-memory 800XL and 130XE computers. It supports 512K upgrades, and future versions are slated to support 1Mb upgrades. It's a 27128 EPROM chip that replaces the OS ROM chip in your computer. If your OS ROM is in a socket, first take the normal precautions against static electricity, then unplug the old and plug in the new. If it's soldered in, you'd better leave it to a professional.

The Expander sets up the extra memory as RAMdisks which can be used with almost any DOS and most programs. A 256K upgrade gets you one or two single-density drives, or one double-density drive; 512K doubles that. You can't set up drives with more than 707 sectors available. There are routines to format the RAMdisks and copy whole disks to them.

The real power of Expander is its ability to renumber drives and boot from any drive. Those few programs that benefit from this ability do great. However, I had no luck with Infocom's Hitchhiker's Guide to the Universe, which comes on two unprotected, single-density disks. In fact, none of the combinations I tried with different Infocom games worked, but older, single-disk games like Zork worked fine. It's a pleasure to go adventuring without waiting for the disk to spin. Saves wear and tear on the drive, too.

There were, of course, compatibility problems with other programs—enough for you to install this with a switch to restore your original operating system. Synergy Concepts provides no instructions for this. In fact, the kit has no installation instructions at all. I didn't know which chip to replace until I noticed there was only one 28-pin chip on the board.

Overall, the Expander is a great idea in need of fine-tuning. The user interface is a bit rough, the manual is truly terrible, and the Expander seemed confused by more than one physical disk drive. Nevertheless, I recommend the product. It does work, it can do things that DOS can't, and it lets you reboot without erasing your RAMdisks.—CHARLES CHERRY

$49.95. Synergy Concepts, P.O. Box 421370, Sacramento, CA 95841.

CIRCLE 256 ON READER SERVICE CARD

Switchable XE

By Charles Cherry

Now that there are some interesting alternative operating system chips for the Atari XL and XE computers, it's handy to be able to switch between them. Fortunately that's not hard to do. All you need is a double pole—double throw switch and a couple of feet of thin wire, about #30.

(Unless you are skilled and experienced at soldering electronics components, you might find it advisable to have this sort of modification done for you by professionals. You could damage your computer if you mishandle the job. And of course you are voiding whatever warranty you may have left on your Atari when you open it up for a hardware modification.—ANTIC ED)

Bend up pin 20 on both OS chips. Piggyback one on top of the other, soldering together all the pins except 20. Plug the chips into the motherboard. Run a wire from pin 20 of one chip to one of the poles

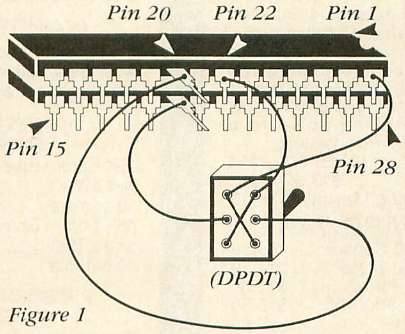


Figure 1

(center connectors) of the switch. Run a wire from the pin 20 on the other chip to the other pole of the switch. Run a wire from pins 22 (which are soldered together) to one of the corner connectors on the switch and then continue it to the opposite corner.

Run a final wire from pins 28 (which are also soldered together) to the two remaining corners of the switch. Drill a hole in the case near the SIO plug and mount the switch. Route the wires around the metal RF shield and tape over sharp edges and corners. ■

FLEET SYSTEM 2

Fleet System 2 is a powerful word processor that's easy to use and has

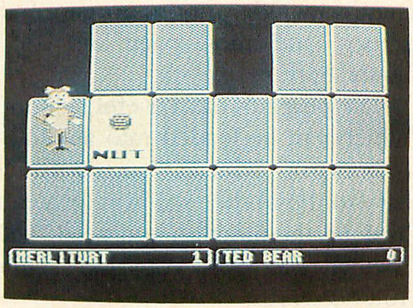
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RAINY DAY GAMES

Baudville
5380 52nd Street S.E.
Grand Rapids, MI 49508
(616) 957-3036
$29.95, 48K disk
CIRCLE **272** ON READER SERVICE CARD

Reviewed by Paul Waxman

Rainy Day Games presents three accurate simulations of children's card game classics—Concentration, Old Maid and Go Fish. The onscreen cards have pictures and names of animals and objects. Graphics are clean and professional, yet not overwhelming. When a match is made, the pictures on the cards are animated—the dog barks and wags its tail, the box springs open, etc.



The Options choice on the main menu lets you elect to use either the keyboard or a joystick. Next, you choose Beginner, Smart or Genius levels—these levels seem to affect the computer's ability to remember exposed cards in each game. You can also turn the sound on or off. And Concentration lets you play against the computer, or one or two other people *plus* the computer. Also, you can have the computer deal out nine, 15 or 25 pairs of cards.

My only suggested improvement would be to give the player one more option—have the matches in Go Fish and Old Maid found either automatically or by the player, instead of just automatically.

I was pleased with my daughter's continued interest in the Rainy Day Games—all three teach the child that both winning and losing are part of playing. However, I found only Concentration to have traditional educational value. Go Fish has some educational value if the child keeps track of which cards the computer exposes during its turn. But the child can still win at the beginner level using a hit-or-miss approach. At the genius level of play, keeping track of the cards is necessary. But overall, we all found Rainy Day Games well done.

COLLEEN MUSIC CREATOR

Colleen Limited
Hallwood 1
7535 S.W. Hall Blvd.
Beaverton, OR 97005
(503) 641-6538
$29.95, 48K disk
CIRCLE **192** ON READER SERVICE CARD

Reviewed by James Pierson-Perry

Compose music for your BASIC programs with the **Colleen Music Creator**. When called via a USR command, the music will play continuously during the vertical blank interrupts (VBI). You can also use it as a song player, and the Combiner option lets you merge up to four music files into a composite file and merge sound effects into BASIC programs.

The Colleen Music Creator is the first of several music-oriented programs from Colleen, Limited of Wales. Subsequent programs will include keyboard and guitar tutors and a drum synthesizer. It's essentially an upgrade of Pokey Player, but while the implementation is better, the documentation isn't.

But the program is easy to use. All controls needed to create music are on one screen. You enter notes by marking keys on a piano keyboard representation—which is tough if you don't play keyboards. I prefer the approach where notes are selected and placed onto a score, which lets you literally copy notes from sheet music.

After booting, press [START] to bring up the main menu with options to create, compile or combine previously compiled music files, and to demonstrate the available sound effects. The error-trapping is good—I couldn't crash the program despite my best efforts.

Notes can have a normal square wave sound or mimic a drum part. Other options include slurs, detuning (to add a phasing effect) and control of the attack and release rates. Four independent voices can be supported—you can have 600 notes per voice in a song.

The editing options include inserting or deleting notes, copying a section and change volume—all for one voice at a time. You can also listen to the entered music at any time using any combination of the four voices. On playback, each voice will loop independently after the last note entered for it. This can create interesting effects: for example, if Voice 1 had a 12-note pattern while Voice 2 had only eight notes, the initial pattern would only repeat every 24 notes.

Compilation is chosen from the main menu. When requested, type in the name of the song, and the program takes it from there. You can merge up to four song files into a composite file with the Combiner option —useful if you want several songs in your BASIC program, as each can still be selected and played separately.

The included sound effects, ranging from alarms to rocket engines, can be tweaked by specifying the pitch, duration, volume, distortion, etc. for each time the effect is used.

If you're simply looking for a jukebox to play songs, you'd be better off with Music Construction Set or Advanced Music System. But if you want to include music in your BASIC programs, Colleen is the best way. ■

CALL TO WARGAMES
continued from page 10

proper balance of aggressiveness and *patience* to let your forces do their job. The enemy must be worn down, with minimal losses on your side. The well-written manual provides useful hints regarding the strengths and weaknesses of each type of unit. Forces are so easy to control with the joystick that you can forget that this is a war game.

$59.95, 48K disk. KRENTEK Software, P.O. Box 720081, McAllen, TX 78502-9990. (512) 682-9598.

CIRCLE **195** ON READER SERVICE CARD

MECH BRIGADE

Mech Brigade simulates a future conventional NATO and Soviet Bloc conflict in Central Europe. One or two players can control either the NATO or Soviet forces. Each unit is approximately a platoon, and each turn simulates two minutes of real time. The game map measures 60×40 squares, but only a 20×10 portion can be seen at any time. The multicolor terrain features rivers, towns, woods and slopes. Unlike many other computer wargames, Mech Brigade lets you stack units in a single square.

You can play any of the four "historic" scenarios or build your own, in which case you must determine the nationality and relative strength of each force, and terrain and battle types. The battle types are pursuit, assault and meeting engagement, with the choice of either side being the attacker or defender.

Units are controlled by issuing commands for each during the orders phase. Units can entrench, change facing and set the maximum firing range at which they will select a target. Most importantly, with the View command, the computer designates each square in a unit's line of sight, which helps you choose optimum "fire lanes" for each unit. Combat, handled automatically by the computer after the orders phase, is divided into four 30-second phases in which each unit accesses a target and fires.

This is certainly not a game for beginners. Each turn can easily take 15-30 minutes. However, the complexity of the game does not lie within the mechanics, but rather in the number of choices a player must make in order to win. Compounding this is the number of units each player can command. And each type of unit demands its own set of unique tactics in order to be used most effectively.—DR. JOHN STANOCH ■

$59.95, 48K disk. Strategic Simulations, Inc., 883 Stierlin Road, Bldg A-200, Mountain View, CA 94043. (415) 964-1353.

CIRCLE **252** ON READER SERVICE CARD

EMPOWERING THE 8-BIT
continued from page 11

a 70,000-word spell-checker. This Atari version of a successful Commodore product supports 19 different printers, including the Epson MX, FX, and RX series, and lets you choose 40, 80 or 120-column display formats and the colors for the center and border of your screen.

Formats with more than 40 columns require horizontal scrolling, but make it easy to do columnar tables and special layouts. If you try that with AtariWriter, with its wordwrap and 40-column-only display, your eyes will go on strike. (*Fleet System 2 doesn't have wordwrap at all, unlike most word processors for the Atari 8-bit computer. The First XLEnt Word Processor has a wordwrap on/off option.*—ANTIC ED)

Fleet System 2 is command-driven and most commands start with the [ATARI] or [\] keys. The commands are divided into four groups—general, function, format and output.

General commands include limited DOS functions, text file load and save, line insert/delete, output mode and setting/clearing tab stops. The numeric tab stop function lets you align columns of numbers easily. In fact, this word processor also sums up columns of numbers for your report.

The function commands consist of print control (underline, superscript, etc.) and block functions (copy, move, delete). There's also a delete function which lets you highlight words or sentences to be removed. The format commands let you set page sizes, margins, centering, justification, headings, page numbers, etc. There's also a command for chaining multiple files for global operations. Output commands include printing to paper or screen, and allow page and copy count options as well.

The program has a useful help file which can be loaded into auxiliary memory or "extra text" area. It's then easy to flip to the extra text area and look up the function you need. The spell-checker lets you add about 10,000 words.

Unfortunately the Fleet System 2 disk is copy-protected. Also it does not contain a DOS, which means you must first boot from a disk with Atari DOS 2.5 or another DOS that has enhanced density. Then you insert the Fleet disk and type RUN"D:BOOT" from BASIC. The manual, though well written, is not Atari-specific—Atari commands are summarized in an appendix. I'd also like to see extra memory support for the 130XE as well a [BACKSPACE] key that can also quickly delete characters under the cursor.—WILLIAM COLBURN ■

$59.95. Professional Software, Inc., 51 Fremont Street, Needham, MA 02194. (617) 444-5224.

CIRCLE **257** ON READER SERVICE CARD

By STEPHEN STOUT

Adventure Creation Kit

Do-it-yourself fantasy worlds

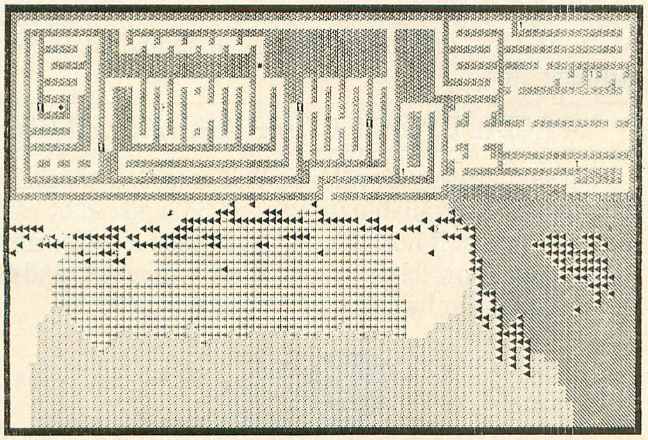
If you ever wanted to design and play an endless choice of Ultima-type scrolling graphics role-playing adventures, Adventure Creation Kit gives you that power. This BASIC program works on all 8-bit Atari computers with at least 48K memory and a disk drive.

You're in for an exciting and dangerous time on your job as a medieval knight in the domain of King Tom. Some villain stole the magic diamond which gives your kingdom's wizard his power. Without the diamond the kingdom is defenseless against Prince Ozzy, King Tom's evil twin brother who always wanted to take over the kingdom and write it off on his taxes. King Tom has entrusted *you* with the difficult challenge of finding another magic diamond!

GETTING STARTED

Type in Listing 1, CREATION.BAS, check it with TYPO II and SAVE a copy before you RUN it.

If you have trouble typing in the special characters in lines 1130, 1150 and 1480, don't type them in. Listing 2 will create them for you. Type Listing 2, checking it with TYPO II, and SAVE a copy to disk. When RUN, Listing 2 creates these hard-to-type lines, and stores them in a disk file called D:LINES.LST. To merge the two programs, LOAD "D:CREATION.BAS" then ENTER "D:LINES.LST" and remember to SAVE the completed program before you RUN it.



When you see the title screen, press the joystick button to bring up the main Creation screen. To play a game, first you must load an adventure map from disk or make up a new map of your own. Owners of this month's Antic Disk can start with the full-length sample adventure, DEMO.ADV. Press [P] to start playing. Press the [ESC] key any time you want to exit the game.

The map of your game is in standard Graphics 2 and the options are in the blue Graphics 0 text window. You see only a small piece of the total map and you can scroll around using the joystick. But you can't cross the solid blue border around the edges of the map. And you can't move diagonally when *playing* the game, only while you're creating a new map.

The object of the game, of course, is to find a white diamond. There may be more than one diamond in a game, so there's more than one way to win.

You start the game with 25 Hit Points (you're dead if this drops to zero) and 5 Strike Points (your strength to attack a monster). Your Hit and Strike Points, the number of keys you have, and any other possessions are displayed at the bottom of the screen.

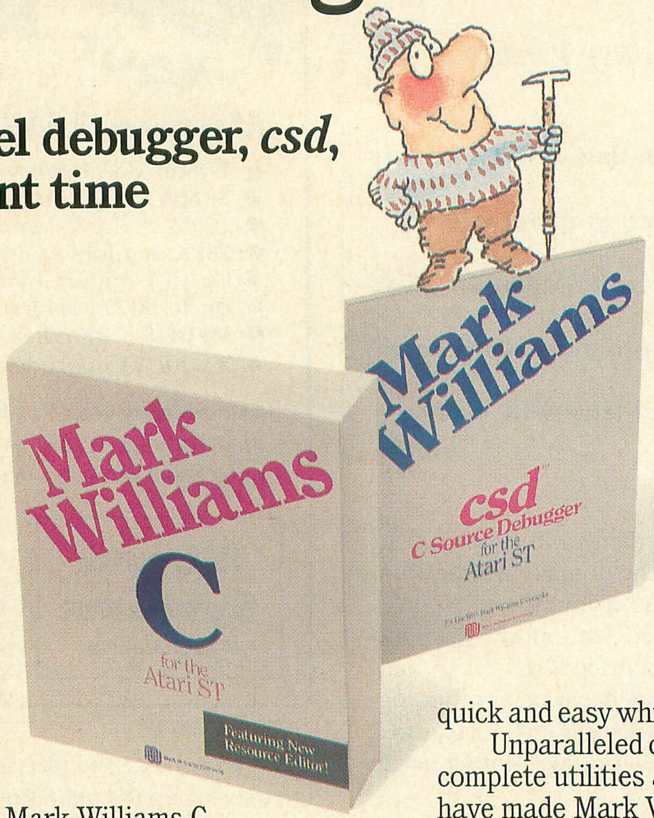
At the start of the game, your knight has no equipment and can only travel over blank green areas. Here are some things you might encounter while playing a map made with the Adventure Creation Kit:

- Red bricks that you can't pass through

continued on page 17

Mark Williams Raises C Programming To A New Level.

New source level debugger, *csd*, cuts development time in half!



Now, on top of the world's best C compiler, Mark Williams brings you *csd*, the world's only source level debugger for the Atari ST!

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–Jonathan Sachs, *Micro/Systems Journal*

FEATURES

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CIRCLE 021 ON READER SERVICE CARD

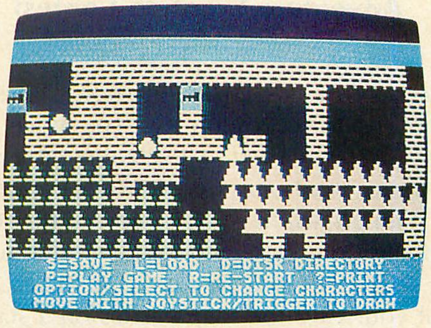
ADVENTURE CREATION KIT
continued from page 15

- Red mountains that you can't traverse
- Green trees and forests that you need an ax to get through
- Blue water that you need a boat to cross
- Green, heavy terrain that you need a horse to travel over.
- Locked blue doors with keyholes that you need keys to unlock.
- White keys that can be used only once
- White axes to chop down trees
- White boats needed to sail on water
- White horses needed to travel over heavy terrain

A key can unlock only one door, and then it disappears. But if you pick up an ax, a boat or a horse, you will keep those objects for the rest of the game. When you need to cross water, for instance, you'll automatically be given use of your boat.

ATTACK

Watch out for the following dangerous creatures!



- Green snakes which have 15 Hit Points and 5 Strike Points
- Red blobs that have 30 Hit Points and 10 Strike Points
- Blue bats with 5 Hit Points and 2 Strike Points

To fight snakes, blobs, or bats you must first cross their paths. Usually they will be blocking the entrance to something.

When fighting a monster, the lower part of the screen will say either ATTACK or DEFENSE. If it says ATTACK, it will also show the monster's Hit Points and *your Strike Points*. At the bottom of the screen is a randomly changing number between 1 and your remaining Strike Points. Pressing the joystick trigger subtracts that random

continued on next page

Adventure Creation Contest

Enter **Antic's** contest for the best games made with Adventure Creation Kit. The judge is Kit author Stephen Stout. All winning adventures will appear as a bonus on the Antic August 1988 disk. Winners will receive a copy of that disk issue. In addition, the Grand Prize winner gets any single Antic Software product from The Catalog.

Mail your Creation map entries on a standard, single density disk that's compatible with DOS 2. Send entries to: Creation Contest, Antic Magazine, 544 Second Street, San Francisco, CA 94107. All entries must be received by May 2, 1988.

On your disk label, please *neatly* print: Creation Contest, your name, address, phone number and the filename of the adventure(s) on that disk. Contest entries become the property of Antic Publishing, Inc. and the disks cannot be returned.

number from the monster's Hit Points.

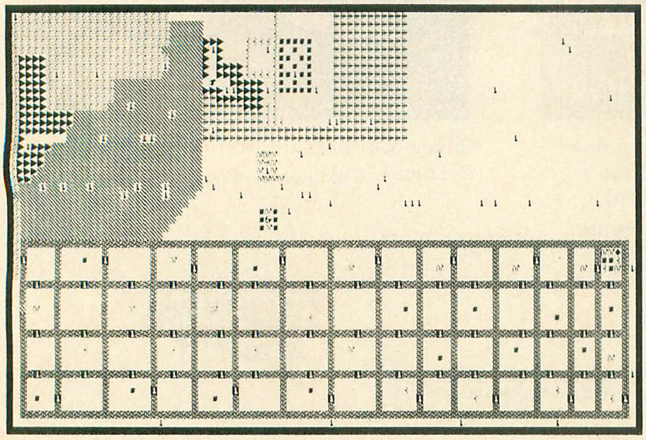
The screen will then say DEFENSE and display *your Hit Points* and the monster's Strike Points. There will again be a randomly changing number at the bottom of the screen. When you press the trigger, that number will be subtracted from your Hit Points.

You'll continue alternating between ATTACK and DEFENSE screens until the Hit Points of either you or the monster reaches zero. If your Hit Points reach zero, then the game is over and you have lost.

But if the monster's Hit Points reach zero, then it dies and disappears. You'll receive extra Hit and Strike Points, depending on how strong the monster was.

If you can't figure out how to win a game, you could cheat by making a printout of the entire map or by looking at it with the editor module. But of course you would only do that as your absolutely last resort.

When you complete a game or quit by pressing the



[ESC] key, all the objects you picked up, all the monsters you killed, etc., will be restored to their original positions from *before* you played the game.

CREATING NEW MAPS

You can make really challenging adventures with the Adventure Creation Kit, but it takes time, debugging—playing the game over and over—and imagination.

The shape that you're currently using as the cursor—bricks, water, snakes, etc.—is in the center of the main screen. The cursor is always white, so you can see it onscreen easily. To use the current cursor for drawing, hold down the joystick button while moving the joystick. To switch the cursor to a new character, use the [SELECT] or [OPTION] keys.

The 15 cursor characters that you can draw with are:

Bricks	Trees	Mountains
Water	Boats	Locked Doors
Keys	Axes	Heavy Terrain
Snakes	Horses	Diamonds
Bats	Blobs	Blank Green Spaces

Your available options are listed at the bottom of the main screen. To choose one, press the key that has the character shown inside brackets [ ].

[S]ave—Enter a filename. The program automatically inserts .ADV as the extender. Save the to a standard, DOS 2.0-compatible disk.

[L]oad from disk—Enter a filename—which must have that .ADV extender.

[D]isk directory—Gives a complete directory of the disk in drive 1. Press any key to return to the main screen.

[P]lay the adventure currently in memory—Press [ESC] to exit the game and return to the main screen.

[R]estart the program—Clear the adventure in memory and go to the title screen. Press [Y] at the "Are you sure (Y/N)?" prompt to restart the game; if not, press any other key.

[?]—Print a map of the entire adventure map currently in memory. The printing routine should work with most Epson-compatible printers. The printout takes up a whole page. Press any key to start. I recommend turning your printer off and back on before and after making a printout. If you know how to program, you could adjust the print routine in lines 1330-1450 to work with your own printer.

CREATION TIPS

There must be at least one diamond in the game in order to win. For every locked door there should be a key. If there is water there must be a boat somewhere, etc. When placing monsters, start with bats and snakes first, so the player can build up strength before fighting a blob. Place the monsters so that the player must fight to get past them. Listing on page 66 ■

*Stephen Stout, 19, lives in Everett, Washington and is the author of Diamond Dave (**Antic**, August 1987).*

Games Galore for 8-Bit

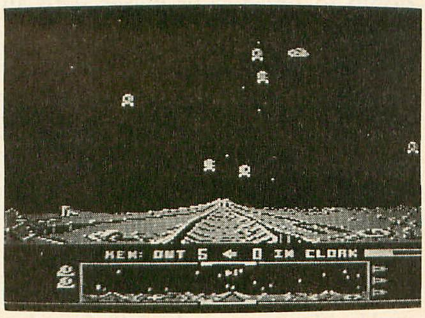
Pawn, Dropzone, Tomahawk, Solar Star, Stationfall, Lurking Horror

DROPZONE, SOLAR STAR

Dropzone is a scrolling shoot-out in Defender style. You control a well-armed spaceman flying back and forth over a planet surface. Below are structures, mountains and small, moving crystals which are the inhabitants of the planet. A radar screen shows the location of any approaching enemies.

Suddenly, aliens appear from the air and you must defend the planet by blasting invaders with your ray gun, while at the same time picking up the inhabitants and conveying them to a safe structure, one at a time.

There are a multitude of aliens, of



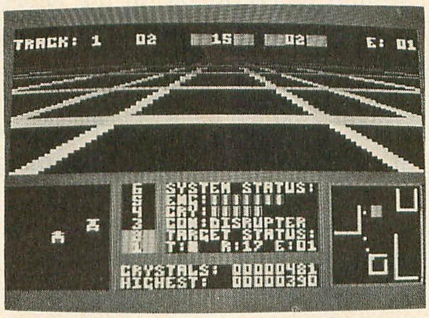
many different types. Some will try to pick up the planet's inhabitants, turning them into fast deadly mutants which come for you unerringly. Other aliens unleash bolts of energy, killing off the inhabitants, while still others release a series of tracking missiles when you destroy them. These missiles are very hard to hit and will chase you till either you get them or they get you.

Contact with an alien or a missile will cause you to explode in a spectacular blast. You have three lives, and get a new one with each wave of aliens you survive. In addition to your ray gun, tapping the space bar will unleash a bomb which destroys everything on the screen, and other keyboard commands will temporarily make you invisible to the enemy. Each wave you survive also adds one to your store of special bombs and more time to your "cloak."

Dropzone is very tough. The aliens come fast, and you must keep a sharp eye on the radar screen. The screen can get very crowded with things trying to kill you. You are also a pretty big target for the aliens to hit. The graphics are very good and the sound is full and effective.

In **Solar Star**, you pilot a fighter through a power grid, trying to recover the crystals which Earth needs for energy. The grid is a maze, and the walls come up with startling rapidity, so you need to be careful and keep an eye on your scanners.

Running into a wall or into a white, moving disrupter costs you energy. When all the energy is gone the game is over. If you manage to shoot a disrupter the required number of times (this increases in the higher levels), it



turns into a moving green crystal. You must then chase it down and run over it to capture it. If you manage to capture 10, you can try to blast the central controller for that section of the grid.

The central controller is surrounded by a revolving wall of energy which has a small hole in it. You must fire through this hole. If you are successful in destroying the controller, then you move on to the next, tougher wave of grids.

The graphics of Solar Star are only fair, with a rather coarse blue grid being the main view out of the cockpit. This is also a really tough game. Avoiding disrupters turns out to be quite a trick, and all too soon your energy is drained by collisions and the game is over. It will challenge arcaders with even the most seasoned reflexes.—DAVID PLOTKIN

$24.95 each, 48K disk. MicroDaft, 19 Harbor Drive, Lake Hopatcong, NJ 07849. (201) 663-0202.
CIRCLE **254** ON READER SERVICE CARD

THE PAWN

The 8-bit version of the early ST adventure hit, **The Pawn**, features stunning graphics and the capability of understanding full-sentence commands. Pawn graphics are actually the best I've seen for the 8-bit. Caverns and bridges seem real enough to touch and you can almost feel the cold as you approach the ice tower. At any time, the graphics can be turned off to speed up the game, or turned back on.

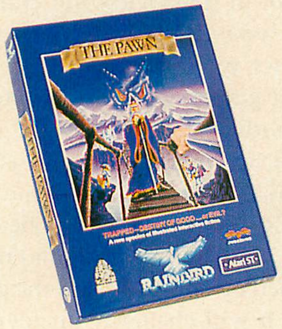
In The Pawn, commands can be combined to form creative sentences, such as, "Sit down at the table, pick up the fork and eat the shoe." Communication is almost conversational. Characters are cryptic, mysterious, even dangerous, but talking with them is vital. Only a specific character might be able to provide the knowledge or object you need.

The game package contains two disks which you should copy before playing. Instructions include a book-

continued on next page

let called "A Tale of Kerovnia" which contains hints for some of the stickier puzzles as well as giving you the flavor of the adventure plus a general idea of the theme. When you're stuck, you can consult the coded clue section in the back of the booklet.

The Pawn's copy-protection is a password system that interferes with the illusion of the game. Occasionally you'll have to type a word from "A



Tale of Kerovnia" in order to continue playing—three strikes and you're out.

Aside from its superior graphics, The Pawn is actually much like other adventure games. But it's still fun and a step ahead of the rest.—JOHN MANOR

$39.95, 48K disk. Firebird Licensees Inc., 71 Franklin Turnpike, Waldwick, NJ 07463. (201) 444-5700.
CIRCLE **253** ON READER SERVICE CARD

TOMAHAWK

Tomahawk is a sensational helicopter battle simulator featuring 3-D realtime graphics. You get to fly the AH-64A Apache attack helicopter, an awesome fighting machine armed with guided missile, rockets and twin machine guns. You can choose from four missions at four difficulty levels.

The missions consist of various strategic strikes against enemies attacking Allied positions. You can switch to a map view at any time and see the locations of enemy forces. The map is divided into a grid, and each section has eight enemy targets, including tanks, anti-aircraft guns and choppers. Careful strategy is needed to defeat the enemy without running out of fuel and ammunition.

The AH-64A is very well equipped with systems to ensure survivability. Besides engine instruments, there is target location radar, weapons system status, damage monitors, turn and bank indicators, an airspeed indicator, and an altimeter. The target radar can show you the heading and distance to targets, beacons (for navigation) and the nearest friendly heliport. A miniature screen will lock onto targets, identify them and show the decreasing range as you close in on them. In the upper levels, these targets are busily firing at you.

Controlling the helicopter takes some getting used to. Unlike a fixed-wing airplane, a helicopter has a "collective" stick which controls how much lift the rotors are providing. A helicopter can hover, and even turn while standing still! These unusual flight characteristics take some getting used to, but the excellent manual not only gives background material, but step-by-step instructions on how to take off and land, hover, and fly this nimble aircraft.

The graphics view is out-the-cockpit in smooth, wireframe 3-D. Many landmarks—buildings, trees, bushes—can be seen on the ground below. Night and cloud-cover missions are available as well as the standard daylight/clear combat conditions.

Tomahawk is a tough game to play because you are attempting to shoot at a target which is on the ground. So you have the tendency to fly into the ground when diving on the target. The trick is not to be too zealous and break off the attack while you can still pull up. If you do crash, the windshield cracks and you wind up back at the base, if you have remaining choppers (you start with three).

The joystick banks, climbs and descends, while the keyboard controls the rudder, throttle, collective, weapons system choice and target radar choice. This is not as bad as it sounds, since most of the systems controlled by the keyboard are "set and forget" during combat. You fly the Apache with a joystick plugged into port 2. Although not noted in the documentation, a joystick plugged into port 1 can also control the collective, so you don't have to use the keyboard for that.

Overall, I was quite impressed by the smooth graphics, playability, and ease of control of Tomahawk. The missions were somewhat simplistic, but still fun to play.—DAVID PLOTKIN

$29.95, 48K disk. Intellicreations (Datasoft), 19808 Nordhoff Place, Chatsworth, CA 91311. (818) 886-5922.
CIRCLE **255** ON READER SERVICE CARD

LURKING HORROR, STATIONFALL

In Infocom's first horror-fiction adventure, it's all too easy to be pulled into the game play—which can keep you up at night, looking nervously over your shoulder. In **Lurking Horror** you're a student at the George Underwood Edwards Institute of Technology—sort of a cross between MIT and Miskatonic University (for you H.P. Lovecraft readers).

In the beginning, you're at the computer center the night before a major paper is due. Trapped inside the buildings by a raging blizzard, you settle down to finish your paper with an overzealous computer hacker as your only (human) companion. Slowly but inexorably you'll head toward confrontation with nightmarish forces that could cost you both your life and your soul.

Your searches will take you from the tallest buildings down into the bowels of long abandoned tunnels and hidden rooms which lie festering under the campus. Without revealing too much, suffice it to say that you'll encounter a malevolent maintenance man, have a terminal religious experience, practice your culinary skills and discourse with a doctor of demonology—until all hell breaks loose.

You can play several different story branches, rather than having to go directly from start to finish. Thus, if a puzzle stumps you, you can go off on a different tangent and continue— often finding something to help with the original puzzle. Though there's far more searching and puzzle-solving than conversing with other characters, it's often more helpful to show them something than to speak and

continued from page 8
asynchronous operation at 300, 1200 and 2400 baud and is about one-third the size of the Hayes SmartModem 2400. Simple commands let you create user configurations that can be stored in the modem's memory—and are loaded every time the modem is turned on or reset. Features include automatic answer/dial, two modular phone jacks for data line and telephone and a speaker.

ALPHA BOOKS & DISKS

(programming utilities)
Alpha Systems
1012 Skyland Drive
Macedonia, OH 44506
(216) 467-5665
$24.95 each, 48K disk
CIRCLE 263 ON READER SERVICE CARD

With the **Basic Turbocharger** book and disk, even a beginning programmer can put the speed, power and flexibility of machine language into BASIC programs. This book and disk package has 167 ready-to-run machine language routines, including scrolling, Player/Missile control, sorting and searching. Optional source codes disks cost $10 if purchased with the package, $15 if bought separately. **Your Atari Comes Alive** is a book of complete instructions, diagrams and control programs for such electronic devices as light pens, LED signs, alarm systems and environmental sensors. **Graphics Transformer** software lets you use almost any graphics screen with almost any graphics program. Combine pictures from different programs on one screen. For example, put Print Shop images into your Micro Illustrator drawings.

BASIC TUTORIAL

(language tutorial)
RAMX Software Co.
1647 Lilac Road
Ramona, CA 92065
$30, 48K disk
CIRCLE 199 ON READER SERVICE CARD

This two-disk package is for anyone who wants to learn all about Atari BASIC. The easy-to-use **BASIC Tutorial** has more than 30 screens of help and covers each BASIC function. Only four keys are pressed to run the program.

UNIVERSAL RS-232 CONNECTOR

(serial interface)
Trans-M Corp.
28 Blacksmith Drive
Medfield, MA 02052
(617) 359-5144
$24.95
CIRCLE 162 ON READER SERVICE CARD

The **Universal RS232-RJ12 Connector** is a simple, flexible solution for finding the right RS-232 serial connection between a printer and computer. Trans-M's RS-232 connection tester comes with enough different configurations to assure compatibility with at least 90% percent of available printers.

Return the favor. When you call a manufacturer or supplier about a product you've seen advertised or otherwise mentioned in ANTIC, please tell them so. This will help us to continue to bring you the latest information about products that will make your Atari computer an even more valuable investment in the future.
—ANTIC ED

GAMES GALORE
continued from previous page

provoke a reaction.

The first half of the adventure is fairly easy, but the puzzles become more complex and interesting toward the end. The story itself is tight and well-crafted. It's easy—*too* easy—to visualize the scenes while cautiously prowling through moldering sub-basements. Overall, I enjoyed the game and would recommend it, particularly for someone new to text adventures.

Stationfall, Infocom's first text adventure sequel, continues the saga begun in Planetfall, a fast-moving cross between Larry Niven and National Lampoon that gave us very memorable Floyd the Droid—the endearing Gomer Pyle of robots. In Stationfall, we return to the future time of the Third Galactic Union. Our hero has found fleeting fame, a promotion to Lieutenant First Class in the Stellar Patrol, and the numbing realization of facing nothing more than shuffling paperwork for the rest of his career—a case in point being an assignment to pick up a multi-ton load of forms at a local space station printing press.

Strange things happen as soon as you dock at the space station. The place is a virtual ghost town. What has happened here? What about the alien space craft, its dead pilot and mysterious cargo that you find? As you continue probing, you recognize signs of an unknown malevolent force that has overtaken the space station.

Fortunately, at your side is Floyd the Droid, rebuilt from circuit board heaven and ready to boogie. Between bouts of finder-seeker and paddleball, your little buddy is along to help solve the mystery and (maybe) save your bacon again. You will also encounter Plato (the only surviving space station robot), an ostrich, an abandoned Arcturan balloon creature and an automated welder that seems to disagree with your continued existence.

Stationfall has plenty of puzzles to solve and rooms to explore. The puzzles are good: hard enough to make you think, but logical, at least in hindsight.

This sequel is, if anything, better than the original story. The plot line is crisp and full of humor—to go along with the straight science fiction. The mood, pacing and characters, right down to the scatology, are a faithful re-creation of the original.—
JIM PIERSON-PERRY
*(The ST versions of these text adventures were reviewed in **Antic**, February 1988.*—ANTIC ED)

$34.95 each, 48K disk. Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. (617) 492-6000.
CIRCLE 256 ON READER SERVICE CARD

Online

By GREGG PEARLMAN, *Antic Assistant Editor*

Inside GEnie

Personal and affordable online service

GEnie, the General Electric Network for Information Exchange, has become increasingly popular with Atari users since first going online on October 1, 1985. GEnie's first Atari RoundTable started on December 11, 1985. What CompuServe calls SIGS (Special Interest Groups such as SIG*Atari) are called RoundTables (RTs) on GEnie.

In fact, GEnie is now the official commercial online carrier of Atari Corp. BBS information. Atari Corporation Online sections are active on the GEnie RTs for Atari 8-bit and ST computers. About eight Atari Corp. employees are involved in maintaining these two sections as well as an RT for Atari Developers.

GEnie also has an RT for MichTron's ST software technical support. All four of the Atari-related RTs provide bulletin boards, software libraries, news sections and Help files. An real-time online conference on some Atari topic is held on GEnie every week, with Atari Corp. employees always present.

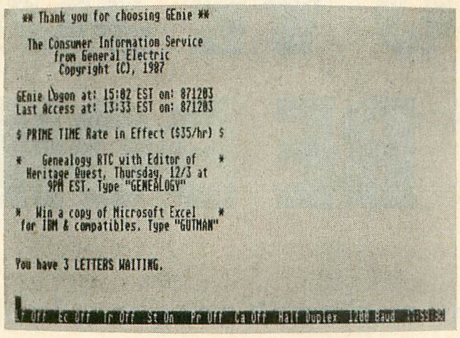
Atari users can get a free GEnie sign-up—saving the usual $29.95 fee—by dialing (800) 638-8369 with a modem, waiting for a connection, typing HHH and pressing the [RETURN] key, then typing in XJM11887,ATARI at the U#= prompt.

Most GEnie personal users log on during evenings and weekends, when the hourly rate takes a breathtaking drop from $35 to $5—even for 1200 baud modems. (It's $10 for 2400 baud modems after business hours.) Other services online include shopping, finance, reference, leisure, games and news.

According to Atari 8-bit sysop Marty Albert, there are roughly 2,200 8-bit RoundTable members. Between 75 and 150 new weekly messages is typical, but there were about 475 new messages per week during the month we were preparing this story.

Chief Atari RT sysop Darlah Hudson counts 6,215 ST RoundTable members. She says that about 1,400 messages per week were posted in the ST RoundTable during the month we were working on this story. This doesn't even include deleted messages, which adds about 10% to the total.

(By Way of Comparison: Mike Schoenbach, sysop of the Atari 8-bit Forum on CompuServe, says that the 8-bit, ST and Developers forums total around 35,000 members, with around 1,500 to 2,000 messages per week. CompuServe hourly rates—anytime—are $6 for 300 baud and $12.50 for 1200 or 2400 baud, with a $39.95 sign-up fee. Upload time is free both CompuServe and GEnie. ANTIC



ONLINE is available on CompuServe without any extra charges, just type GO ANTIC when you log on.)

TOPIC LISTS

"On our bulletin boards we have individual topics that are easy to find," says Darlah. "Just look at the list of topics and decide which one you'd like to explore. Lately the ST bulletin board has received more detailed messages about WordPerfect than anything else. The same was once true of Publishing Partner. It depends on what's hot."

On the 8-bit board, the SX212 modem generated the most excitement recently, but much is said about the XEP80 80-column box and the upcoming XF551 drive also. "Users are writing programs for the XEP80," says Marty, "and recently someone uploaded a driver to use it with the BASIC XE cartridge.

"In the 8-bit area we're organizing a group project for a program that probably will combine ACTION! and compiled BASIC. We're considering either a MacPaint picture viewer or a terminal program. We want to use a language like ACTION!, which lends itself to the modular approach, and by using machine language subroutines written in BASIC and compiled, we can go from module to module.

"But if I restrict it to just ACTION! or just C, I'll exclude the largest part of our users, the BASIC-only programmers. Interpreted BASIC is too slow for this kind of program, but compiling it will take care of that. Keeping everyone together will be a nightmare, but I'm willing to put in the extra work. Since the 8-bit isn't getting the commercial support that it used to, we have to generate support ourselves."

INVOLVED SYSOPS

Darlah and Marty both were avid CompuServe users who tried GEnie one day—Darlah at the suggestion of a friend, and Marty upon seeing an ad in **Antic**. Neither was enthralled at first. There were as few as two or three new messages a day.

There were other things about GEnie that Darlah wasn't sure she liked, so she stuck with CompuServe, occasionally calling GEnie and posting messages.

The 8-bit and ST groups then were all part of one RoundTable. ST users began heading in a different direc-

continued on page 26

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INSIDE GENIE
continued from page 23

tion from the 8-bit people, and that's when Darlah was asked to get involved. She became a sysop in late 1986. "I wasn't sure if I'd have the time," she says, "but I finally decided I'd enjoy it, because I enjoy customer service.

"One thing I hadn't seen in other online services was personalized customer service—little things that bring users back," she says. "For instance, though uploading is free, it's time-consuming, so we write thank-you notes. And we're more personalized *within* the system. Users can notify us online any time by asking us to meet them in a particular room." GEnie "rooms" have simulated "doors" you can lock for privacy.

Marty had also seen things on GEnie he wasn't crazy about. So on his first visit he dropped a note to the RoundTable, then logged back onto CompuServe. "When I returned to GEnie three hours later," he says, "my questions had been answered. This really impressed me." Marty went online as a sysop in December 1986. "I was rather floored when I was asked, because I wasn't actively seeking a sysop position."

"We needed someone active in the 8-bit area," says Darlah. "Marty was the right person for the job. I'm very happy with the way he creates excitement in the 8-bit area."

Marty and Darlah do their GEnie work at their homes—in St. Louis and San Diego, respectively. Usually Marty spends four or five hours a day with GEnie, but lately it's been six to eight. Darlah used to spend only about two hours a day online, but now she spends eight to 10. "It goes in cycles," she says.

And it's not as though they have nothing to do outside GEnie. Marty is a registered nurse *and* a Ph.D. in psychology—*and* he owns a tobacco and pipe store. "I keep pretty busy," he says. "I'd have to call myself a workaholic."

Darlah used to have a plumbing business. "I did that *and* GEnie at the same time, working 20 hours a day," she says. "It was chaotic, so I gave up the plumbing business, which was round the clock. I'm also a workaholic—I need to be heavily involved in my work."

Marty says that the public domain Express! is *the* terminal program for 8-bit GEnie users. He uses it for about 90% of his terminal work, switching to BackTalk for software library maintenance. The most heavily used ST terminal software is a toss-up between Flash and Interlink, Darlah says. "All our ST Help files for text uploading and offline messages are built around Flash—of course, it so happens that I use Flash. But Interlink has slowly gained interest. People still want an 'everything' program, but there just isn't one yet."

WHO'S ON GENIE

Marty finds GEnie users very different from those on CompuServe, although to Darlah, it's not the *users* that

are so different—it's the services. "Heavy CompuServe users point out things on GEnie that aren't like they're accustomed to on CompuServe," she says. "I used to feel the same way. It's hard to compare the two services because each has benefits the other lacks.

On the 8-bit bulletin board, Marty tends to be "very, very lenient," though he wants to keep it clean. "But I won't let anyone post explicit hints for adventure games. I figure that if I paid $50 for one and saw this hint—without knowing it would be there—I'd be very upset. I tell people to feel free to *ask* for hints, but to *give* hints via private messages." Darlah does the same thing in the ST area.

In both the ST and 8-bit areas, users are highly mixed. "We have topics set up where there are technical areas as well as game discussions, modem discussions, whatever," says Darlah.

"Some users know just enough about their new 130XEs to set them up, boot the terminal program and call GEnie," says Marty. "Other users are well versed in both hardware and software."

On GEnie, past messages are always available, either on the bulletin board or in an archive. They never disappear. "Periodically we go through the topics within each category and delete irrelevant messages," says Marty, "and I'm as guilty as anyone else of chit-chat. We put all the remaining messages in order and download all the messages older than, say, 60 days. Then we compress that file and upload it to the library. That way the information is still available, but we've made the bulletin board easier to use."

GENIE MAIL

Darlah says that GEnie Mail is used more on GEnie than Easyplex on CompuServe because GEnie doesn't have an addressable message base. But Marty feels that one big advantage to GEnie Mail is its ability to quickly send an XMODEM file. "Several users who have written 8-bit programs that they want to market have asked me to do informal beta testing for them," he says. "Instead of uploading files to a library, where it wouldn't be 'for my eyes only,' they just send them to me via GEnie Mail."

"We have a service," says Darlah, "in which a developer can send a finished product to a place like MichTron *through GEnie*. Then MichTron can download it and test it. It's quicker and easier than mail."

Darlah's and Marty's Help files let users learn the system enough to feel comfortable with it. "There are files for navigating through the bulletin board, file transfer, explanation of appropriate settings, how to use mail, etc.," says Darlah. "They're very detailed. Just capture a Help file, print it, and go through it step by step.

"GEnie customer service is excellent. If they can't solve a user's problem, they contact me, and I work with that user online. One of our services is to give a public domain terminal program to users who don't have one. Service is the key."

Online Sources on page 40.

When you want to talk Atari

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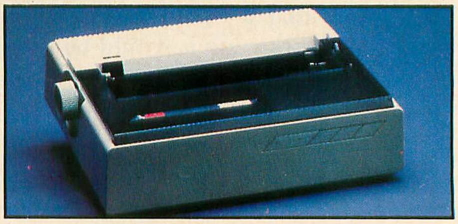


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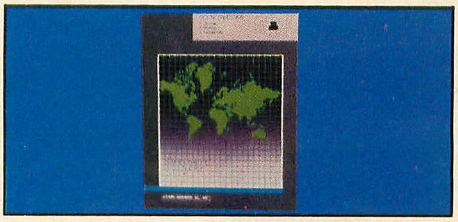
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ST SOFTWARE

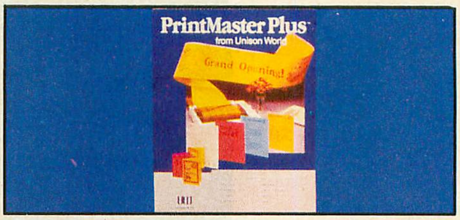


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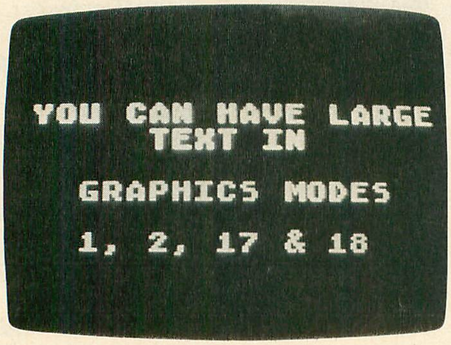
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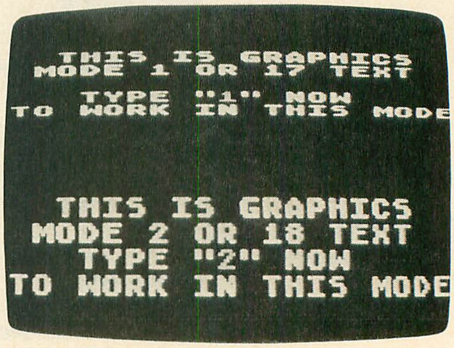
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BIG LETTERS

Text for your programs or videotapes

BY JERRY VANDEN BOSCH





Big Letters is a user-friendly display program that makes it easy to create flashy text screens in large-character Graphics Modes 1 and 2. You can even create title screens for your videotapes with this BASIC program, which works with Atari 8-bit computers of any memory size, disk or cassette.

One reason I bought my trusty Atari 800 back in 1982 was the ease of using large letters in Graphics Modes 1 and 2. My daughter is visually impaired, and I've used these modes in many successful math and spelling tutor programs for her.

Over the years, I tinkered with my Big Letters program until it did everything I want for this kind of specialized text editing. Big Letters quickly creates large, clear HELP pages, title screens and menus for your BASIC programs. And you'll never need to type a single PRINT #6 or POSITION statement because Big Letters creates all the subroutines!

When my family bought our first VCR, we discovered a bonus—Big Letters is also great for titling our videotapes.

For newer Atari users, these are the large-text graphics modes used in Big Letters: Graphics 1 is double-width with 20 lines on the screen. It has 20 characters per line instead of the 38 per line in Graphics 0, which is the mode that goes on automatically when you turn on your Atari. Graphics 2 is double-width, double-height, still 20 characters per line but only 10 lines fitting on the screen.

Graphics 17 is simply Graphics 1 with four extra lines at the bottom of the screen gained by removing the Graphics 0 text window. Graphics 18 is Graphics 2 with an extra 2 lines gained by closing the text window.

To put the power of Big Letters at your command, type in Listing 1, BIGTEXT.BAS, check it with TYPO II and SAVE a copy before you RUN it.

USING BIG LETTERS

Each Big Letters text screen is created on a Graphics 0 editing screen. Your editing commands are listed on the left half of the screen. The right half of the screen contains your editing window. The size of this window is determined by the Graphics Mode your Big Letters will use.

Editing your text is easy. Individual characters or whole lines of text can be inserted or deleted with the same familiar keystrokes used for programming and word processing.

You can also use [CONTROL] [ARROW] key combinations to move the cursor one space at a time.

Try to avoid using the ["] character, though, because it will appear in a different color than the rest of your text.

You can preview your work anytime by pressing [CONTROL] [G], then answering a prompt to select a Big Letters display with or without a Graphics 0 text window.

And here's the best part: You can move between the editing window and the Big Letters display at will, without losing your work. If you're working in Graphics 2, for example, and want to see your work in Graphics 1, press [CONTROL] [C]. Press [CONTROL] [G] to return to your original Graphics Mode.

You can use combinations of lowercase and inverse-video characters to create Big Letters in four different colors. *Figure 2* shows the available colors and how to get them. The background color is black. If you don't like these colors, feel free to alter the SETCOLOR statements located throughout the program.

GRAPHICS MODE	ROWS	COLUMNS
1	20	20
2	10	20
17	24	20
18	12	20

Figure 1

TO GET THIS	LARGE LETTER CHARACTER COLOR			
TYPE THIS	ORANGE	AQUA	BLUE	RED
CAPITAL LETTERS	X			
small letters		X		
INVERSE CAPITALS			X	
inverse small letters				X
NUMBERS, PUNCTUATION, MATH SYMBOLS	X			
INVERSE NUMBERS PUNCTUATION, MATH SYMBOLS		X		

Figure 2

VCR CONNECTION

When you're satisfied with the large text displays you've created, you can record them with your VCR.

The following method assumes that you own at least two video monitors or TVs—one for your Atari and one attached to a VCR. If you only own one TV, make sure it's connected to your VCR before proceeding.

First, unscrew your Atari's switchbox from the back of your television set. Next, pack up your computer, disk drive and power supplies and carefully carry them over to your VCR. Set up your Atari next to your VCR and connect your Atari's switchbox to the VHF INPUT terminals of the VCR.

Next, tune your VCR to the same TV channel that you use for your computer (channel 2 or 3).

Finally, RUN Big Letters and create your display.

If you have several different Big Letters displays to record, you can create them one at a time, starting and stopping the VCR for each one. This is the method recommended for beginners.

Once you feel comfortable using Big Letters, you should try this advanced technique. Using this method, all of the

continued on page 40

Roman Numeral Translator

Losin' those MCMXXIV blues

By David Stone

Erected MDCCCXCVII. Copyright MCMLXXIV. See Chapter XLIX. Aarrghh!

Yeah, now you know you got them Roman Numeral Blues! You look up a date or some other numeric information, and you find it coded in this antiquated format that's indecipherable to any self-respecting member of the computer age. Why couldn't they put those numbers into some easier form, such as reverse Polish hexadecimal bytes?

If you're like me, you don't appreciate being burdened with needless trivia just to determine that the building was erected in 1897, the book was published in 1974, or you should see Chapter 49. It's been a long time since I learned Roman numerals in school and I don't find it easy to remember information that I might actually need to use once every two or three years.

But now you have Roman Numeral Translator to take all those cryptic M's and X's and display their equivalent in good old standard Arabic 1,000's and 10's. Or, if you're strange enough to *want* to express your own numeric data in Roman numerals (Yechh!), my program will also convert from Arabic back to Roman.

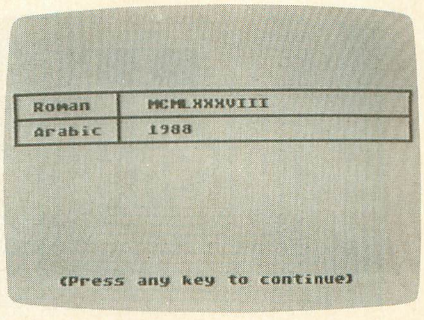
ABOUT THE PROGRAM

Type in Listing 1, ROMAN.BAS, check it with TYPO II and SAVE a copy before you RUN it.

At the prompt, simply type in either a Roman or an Arabic numeral, then press the [RETURN] key. Whichever type of number you entered, the value will now be displayed in both its Roman and Arabic forms.

continued on page 40

ROMAN NUMERAL TRANSLATOR is a brief program that simplifies your life by converting mysterious MCMLXXIV into good old Arabic numerals 1974, etc. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

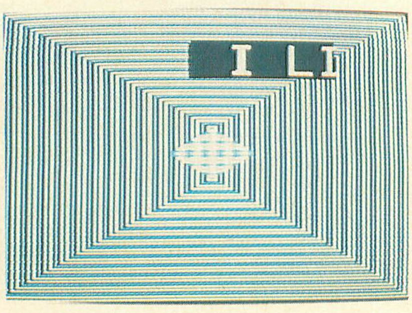


Mr. Smoothy

Text scrolling deluxe with a powerhouse subroutine

by Kenneth Kaye

MR. SMOOTHY is a powerful subroutine that lets you add a one-line smooth scrolling text window to your BASIC programs. Mr. Smoothy works in any Atari graphics mode and displays messages as long as 120 characters. To successfully use Mr. Smoothy with your own programs, you should be an intermediate BASIC programmer. This BASIC program works with Atari 8-bit computers having at least 32K and a disk drive.



Mr. Smoothy is a machine language routine that lets you add a one-line smooth scrolling text window to your BASIC programs. Mr. Smoothy works in all bit-mapped graphics modes (Graphics 3-11). XL and XE owners can also use Graphics 14 and 15.

After loading a picture or drawing a screen, your BASIC program starts Mr. Smoothy with a USR command. Once started, Mr. Smoothy determines what part of the screen will be blocked-out by the text window, and copies this part into a safe buffer.

Next, it opens the text window and scrolls your message through it. This window is eight mode lines high and can be between one and 40 bytes wide. (A mode line is a set of TV scan lines. A single mode line may contain as few as one scan line, as in Graphics 8; or as many as 16 scan lines, as in Graphics 2.)

Your message cannot be longer than 120 characters and it may not use any inverse-video characters. All other characters, including control characters and punctuation marks, can be used. Mr. Smoothy may also be used in programs which use redefined character sets, so long as the above two rules are observed.

The SMOOTHY demonstration needs two listings: a BASIC program and a data file containing Mr. Smoothy's machine language routines. Listing 1 is the main program, Listing 2 is a BASIC program which will create the data file.

Type in Listing 1, SMOOTHY.BAS, check it with TYPO II and SAVE a copy to disk. Once you have SAVEd SMOOTHY.BAS, type NEW. Do not RUN the program yet.

Next, type in Listing 2, SMOOTH2.BAS, check it with TYPO II and SAVE a copy to disk. When RUN, Listing 2 creates SMOOTHY's data file, SMOOTHY.DAT. Be sure that SMOOTHY.DAT and SMOOTHY.BAS are on the same disk. Antic Disk users will find SMOOTHY.DAT on their monthly disk.

Now, RUN Listing 1, SMOOTHY.BAS. When RUN, the program loads the SMOOTHY.DAT file, displays a flashy, scrolling title screen, then presents the Mr. Smoothy menu.

USING THE DEMO

SMOOTHY.BAS is a menu-driven program which lets you create almost any type of scrolling text window. Mr. Smoothy's menu offers seven choices:

Choice 1 sets the graphics mode. You may use any bit-

mapped mode (Graphics 3-11). XL and XE owners may also use Graphics 14 and 15.

Choice 2 sets the scrolling speed. Speed values range from 0 (fastest) to 15 (slowest).

Choices 3 and 4 determine the position of the upper left hand corner of the text window. Legal values are displayed next to each choice.

Choice 5 sets the width of the text window, expressed in bytes. Legal values are displayed next to this item.

Choice 6 lets you set the color of the scrolling message. In a two-color mode (such as Graphics 4, 6, 8 and 14) you don't have a choice. However, you must still enter a value between 1 and 4.

In the four-color modes, you can color the text with any foreground color, or alternate the color of each character between the three. Numbers 1-3 refer to the same color registers as BASIC's COLOR command. A value of 4 will make each character an alternate color.

Choice 7 lets you type in your message.

For example, let's create a slowly scrolling window in Graphics 9. We want our window to be 20 bytes long, centered and displayed in alternating colors.

First, type a 9 at the GRAPHICS MODE prompt. As soon as we do this, Mr. Smoothy determines the proper screen dimensions and expresses these as legal values which we may use in positioning our window.

Now, set the speed of the scroll. A 15 will give produce slow scroll.

Next, position the window. Since the screen extends from column 0 to 39, the center column would be near column 19. Since half of our 20-byte text window will be to the left of this position, the text window must begin at column 19-10, in other words, at column 9. Using an out-of-range value here will probably crash the program or at least open your window in the wrong place.

Similarly, if we have 184 rows available, the center one would be row 92, which is what we enter for choice 4. Keep in mind that your window will extend seven rows below this point.

Next, enter 20 as the window length, and choose 4 to select alternating colors.

Finally, type your message, press [RETURN], and watch it scroll.

SCROLL-YOUR-OWN PROGRAMS

Mr. Smoothy isn't hard to include in your own BASIC programs as long as you follow a few guidelines. First, you *must* have a copy of the SMOOTHY.DAT file on your disk. Mr. Smoothy will not work without this file, so if you use Mr. Smoothy in your own BASIC program, be sure SMOOTHY.DAT is on the same disk.

Next, make sure you use *both* Mr. Smoothy subroutines. They are contained in lines 31000-31550 of the demonstration program.

Mr. Smoothy is initialized in the subroutine in lines 31000-31045. Call this subroutine once at the beginning of your program with a GOSUB 31000 statement. This subroutine DIMensions two string variables, lowers RAMTOP and loads SMOOTHY.DAT.

The second subroutine, beginning at line 31500, is the heart of Mr. Smoothy, and contains the USR call which starts the scroll.

Note that the first two lines of this subroutine begin with REM statements. The jobs that these statements perform are handled in the main program. However, if you're using this routine in your own program, remove the REMs and insert your own values, as explained in the following take-apart.

Line 31500 places the message to be scrolled into MS$. Stores the graphics mode number in MODE.

Line 31510 places the values for scrolling speed, column and row number, and window length into SPEED, COL, ROW and WLEN.

Line 31520 is the USR call which starts the Mr. Smoothy routine.

ABOUT THE PROGRAM

To make Mr. Smoothy as efficient as possible, the routine uses direct addressing commands and is NOT relocatable.

The SMOOTHY.DAT program *must* be put into RAM beginning at address 38912 ($9800, the first byte of page 152). This is eight pages under the normal value of the RAMTOP pointer (memory location 106, $006A).

Although SMOOTHY.DAT is only 1,012 bytes long, it uses an additional 845 bytes to store screen RAM and other data, so you must reserve at least eight pages above your starting address.

It's best to leave another eight-page buffer under page 152 if you're using one of the higher-resolution modes. This occurs in line 31000.

Mr. Smoothy uses Zero Page bytes 203-214 ($00CB-$00D6) when scrolling. If your main program stores data in any of these locations, be sure to copy the data to another area of memory before entering Mr. Smoothy's USR call (line 31520).

Mr. Smoothy also installs a vertical blank interrupt, using the immediate mode vectors at VVBLKI, memory locations 546 and 547 ($0222 and $0223). The entire vertical blank interval is used, so no other processing can happen until the scroll is completed.

There are six error trapping routines in the code. If Mr. Smoothy won't scroll, it will usually display a USR ERROR# message. The number of this error message corresponds to the errors listed below:

1. Incorrect number of arguments.
2. String length exceeds 120 characters.
3. Window length exceeds 40 bytes.
4. Incorrect color value.
5. Illegal character in the string.
6. Not a map mode.

Listing on page 68 ■

Kenneth Kaye is a 37-year-old press brake operator from Garfield Heights, Ohio. He has been programming in BASIC and assembler for four years and this is his first appearance in ***Antic.***



Photography by Tony Carlson

Shootout of the Video Game Systems

Atari vs. Nintendo and Sega

By DAVID PLOTKIN, *Antic Contributing Editor*



Cover Story

I'm going to let you in on a secret: Even though I'm a grown-up engineer for a Fortune 500 corporation—I LOVE to play video games.

This is quite well known around the **Antic** offices and causes much kidding by the more "serious" computer users there. So I was understandably delighted when the editor of **Antic** called to ask if I wanted to review the three premier video game systems currently available—the Atari XE Video Game System, Nintendo Entertainment System and Sega Master Game System.

Today's game systems bear little resemblance to the pioneer models such as the still-available Atari 2600. They are far more powerful, with more colors, more animation, more complexity overall—providing a far superior gaming experience.

I: SEGA MASTER SYSTEM

$150. Sega of America, Inc., 573 Forbes Blvd., South San Francisco, CA 94080. (800) USA SEGA (National). (415) 742-9300 (California). Includes: 2 Controllers, Adapters, Light Gun, Safari Hunt/Hang On cartridge.

CIRCLE **280** ON READER SERVICE CARD

Sega, now distributed in the U.S. by Tonka Toys, sent us their standard Power Base with two control pads, a light gun called the Laser and a superior game cartridge with two games built in. The control pads consist of a handheld box with a tiny nub of a toggle-stick and two buttons. Personally, I prefer a real joystick.

But Sega's optional Control Stick, a heavy-duty, responsive joystick, was a joy to use. I also tried out the Sports Pad—which is a trackball, supposedly most suitable for sports games. Strangely, the switch had to be set to "Control" rather than "Sports" for it to work correctly with the sports games I tried.

The Sega system was easy to set up, and even included a special cable that hooks up to a computer monitor for clearer graphics than a TV set. The Sega light gun was the best one I tried. It was *very* accurate.

The most unusual accessory was a set of 3-D glasses for simulated three dimensional games. While I found the 3-D effect to be only moderately successful (there was some image separation), the game using the glasses benefited quite nicely from 3-D.

Quite a variety of game cartridges is available for the Sega Master System and can be found easily at many local retailers. The system actually takes three different kinds of cartridges. The Sega Card looks like a credit card and uses a separate slot in the Power Base. Then there are the Mega Cartridges and the Two Mega Cartridges.

Sega boasts that the card holds 256K of memory, while the Mega holds 1 MEG and the Two Mega cartridges hold 2 MEG. Most reviewers are fooled into thinking that these numbers refer to the number of bytes of memory in the cartridges. In fact, they refer to the number of *bits*. So the three cartridges hold 32K, 128K and 256K. This is still pretty impressive, considering that the early computer games like Star Raiders were only 8K!

The games for the Sega tend to be high quality, with a good variation of arcade, adventure, and sports. **Safari Hunt** and **Hang On** are together on the cartridge included with the system. Safari Hunt is a simple shooting game which uses the light gun to plug away at a variety of animals as they move through three different scenarios.

Hang On is a very good motorcycle racing game. The view is from behind and slightly above your rider. Your cycle has an accelerator and gear shift.

The motorcycle races through an impressive landscape including deserts, night cities, and open country. The graphics are similar to Pole Position, but tend to have some flicker. Obstacles include opposing riders, some nasty curves and poles/cactuses along the side of the road.

Outrun is a car racing game on a Mega cartridge, but you wonder what they did with all that memory. The track has numerous splits, so you can race a different course each time. The graphics of your car are very sharp and realistic, especially when you flip over after hitting a curve too fast. Control is like steering on ice—the car slides around too much. The background graphics have considerable flicker, and the illusion of motion is poor.

Atari owners will recognize the next title— **Choplifter**.

continued on next page

Again, you must rescue the hostages from their barracks by blowing the barracks open and landing your chopper, then transporting the hostages back to a safe haven.

Enemies include other choppers, fighters, anti-aircraft guns (both fixed and mounted on trucks) and missile launchers. The ever-present tanks are more of a nuisance than a threat. The graphics are well-defined, but again tend to flicker. Controlling the helicopter is easy because of the two buttons on the control pad.

F-16 Fighting Falcon is a Sega Card. It uses two controllers to operate the direction, speed and weapons of a flight/combat simulator. A "Heads-Up Display" summarizes your weapons status (cannons, missiles), range, and warns of enemy missiles. Your fighter is equipped with electronic countermeasures, two kinds of radar, compass, altimeter and airspeed indicator. The higher levels of difficulty feature more enemy aircraft which dodge your efforts to shoot them down more adeptly.

Missile Defense 3-D uses the 3-D glasses mentioned above, along with the light gun. Each side launches missiles at the other. You have three different scenarios for attempting to shoot the missiles down. If any get through and hit their destination (the other side's capital city) the game is over. Firing your light gun at the screen causes a small explosion to appear on the screen which will destroy a missile if it hits it. Though I find the concept of the game pretty chilling, the gameplay is good and fun.

Great Baseball is a one-or-two player baseball game. You can choose your team and pitcher characteristics (preferred pitch and stamina). You use the controller pad to select a pitch. In Level 1, your fielders move to get the ball automatically, in Level 2 you must control the fielder closest to the ball.

Once the fielder has the ball, you can select which base to throw to. When it is your turn to bat, you press one of the buttons to swing at the ball.

II: NINTENDO ENTERTAINMENT SYSTEM

$99. Nintendo of America, Inc., 4820-150th Avenue N.E., Redmond, WA 98052. (800) 422-2602 (National). (206) 422-2602 (Washington). Includes: 2 Controllers, Adapters, Super Mario Brothers cartridge.

CIRCLE **281** ON READER SERVICE CARD

The smallest of the three systems is the Nintendo, but there is a lot of power in this box. Cartridges are loaded from the front via a lift-up door and seated by pressing down into the machine. This takes a little getting used to, but is not too difficult. The standard system comes with two controllers and the **Super Mario Brothers** cartridge. The controllers are similar to the those supplied with the Sega, and I again did not care much for them.

Optional hardware is available for the Nintendo. Sent with our system was a joystick called the Nintendo Advantage. It has a large base and is very responsive. In addition to the two fire buttons and the Start and Select buttons, this device features a turbo button for each fire button. When this turbo feature is engaged, the fire buttons shoot continuously when held down. The rate of firing is adjustable. There is also a switch which allows the single joystick to control either player 1 or player 2.

The graphics of the Nintendo games were *impressive.* Although most of the games did not seem as complex as the Sega offerings, the graphics were generally of higher quality and much more flicker-free. The Super Mario Brothers cartridge included with the system was a lot of fun and could keep you entertained for many hours.

You guide Mario through scenery which scrolls to the right. He can jump over a multitude of enemies (turtles and a few other things I couldn't begin to identify), or try to jump on them, squashing them for extra points. Blocks with question marks appear overhead in many scenes. Jumping up to hit these with his head gets him extra points and sometimes frees items which can help him. The mushroom, for example, turns him into Super Mario, able to leap further, break bricks with his head, and survive one encounter with an enemy.

Metroid is another game with superb animation. You guide an armed robot through an underground fortress. He can jump (turning over in midair—a very nice effect), shoot in three directions, and duck. Along his quest, he will encounter a variety of power objects which give him extra lives and more powerful weaponery.

Kung Fu is one of the best martial arts games I have seen. Your hero moves through a five-floor fortress to rescue his maiden Sylvia. On the way, he must fight thugs, ninjas, snakes, dragons, and some very mean sword-wielding characters.

In **Kid Icarus** you guide an Angel, jumping from platform to platform, shooting enemies with your bow. Enemies turn into hearts when shot, and collecting the hearts allows you to use them in later stages to buy extra supplies. Touching an enemy robs the angel of some strength, and when it is all gone, you die.

A large number of sports simulations are presently available for the Nintendo. In **Golf** you use your joystick to control which club you use, then the force of your backswing, foward swing, and the moment of impact. You can also choose the direction you want to aim your ball.

If you misjudge the swing's force or use the wrong club, you may end up a long way from the hole. Misjudging when to hit the ball could also hook or slice your shot.

Pro Wrestling is a gas to play. You choose who you want to be from a slate of wrestlers, each one with a specialty for wreaking havoc on an opponent. You also select an opponent to be controlled by the second player or the computer. Quite a number of realistically animated moves are available using the joystick and two fire buttons.

The **Slalom** ski racing game has a view from behind and above your skier. You guide him down a large variety of runs. To continue the game you must make the qualifying time on each run. There are flags which you must ski through for maximum speed, and you can accelerate and

slow down, steer, even jump.

Baseball can be played against the game machine or another player. The screen switches between two views. The a closeup of the infield is used during batting and infield plays. If you manage to knock the ball into the outfield, the screen switches to a view of the whole ballpark.

Tennis can also be played solo or against another player. When played solo, you select the level you want the machine to play at. You control your player as he runs around on the court. Pressing the fire button makes him swing (either forehand or backhand, depending on where the ball is). Rushing the net is good strategy in the lower levels.

The **Legend of Zelda** adventure game is the flagship of the Nintendo line. Packaged in a gold cartridge, it even features a built-in five year battery to save games! The hero is named Link, and the object is to find the eight pieces of the Triforce, kill the evil Ganon, and rescue Princess Zelda.

Link must negotiate the areas above-ground until he finds the entrances to eight different underground labrynths. A large variety of the oddest creatures to grace a video game are constantly trying to do poor Link in.

III: ATARI XE VIDEO GAME SYSTEM

$149.95. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000. Includes: 1 Joystick, Light Gun, Adapters, Flight Simulator II cartridge, Bug Hunt cartridge.

CIRCLE **282** ON READER SERVICE CARD

The Atari XE Video Game system can be looked at as either the newest or the oldest product. It's the largest of the three units—about the size of a 65XE computer. And in fact, that's what it is.

The XE Game System is a cosmetically redesigned two-piece 65XE. And in turn, of course, the 65XE is simply the newer version of the Atari 800XL, the computer model used by over 30% of **Antic** readers. The XE Game System is very pretty, with large round pastel function keys on the Atari gray shell. The full keyboard is detachable and sits in front of the main unit. The XE Game System was premiered with elaborate fanfare at the June 1987 Consumer Electronics Show in Chicago. Atari executives at CES made it clear that they thought repackaging a version of the 65XE/800XL as a "high-end game system" was Atari's best—and perhaps last—chance to move a lot of 64K computers into homes via today's mass marketing outlets.

The standard Atari cartridge slot is on the top of the main case. The two joystick ports are hidden underneath the top lip and are extremely inconvenient to get at. The system comes with a light gun and the standard Atari joystick.

I found the light gun to be very inaccurate, even in a carefully darkened room. Unlike the Sega gun, the sights are useless. The point which is hit on the TV screen is off to the left of where the gun was aimed.

If you own an eight-bit Atari computer, you have a pretty good idea of the excellent archive of games and the high quality of graphics available from the Atari XE Game System. The system comes with two cartridges. **Bug Hunt** uses the light gun to shoot bugs and frogs on a grid. There is a satisfying sound if you fry a bug, and you get extra points for accuracy.

The second cartridge is the best-selling **Flight Simulator II**. This is a complex game that can be used for serious pilot training. It has decent graphics, virtually identical to the computer version. I'm impressed that they could stuff all the program information into a 128K cartridge. Atari utilizes bank-switching to pack as much as 256K of memory into its new generation of cartridges.

In Flight Simulator, you pilot a small Cessna airplane, with an out-the-cockpit view. The keyboard is necessary to control the plane, with throttle, trim, stabilizers and other controls at your command. The joystick is used for banks and turns, as well as climbing and descending. A full instrument panel is presented on the screen, with artificial horizon, turn and bank indicator, airspeed and others.

I only had Atari's two included cartridges to test with the XE Game System, although the literature boasts of a large number of games which are to be available. Most of these titles are familiar from 8-bit computer disk versions, but many have never been released on cartridge before.

I found that my existing Atari computer cartridges work fine on the XE Game System, which makes for a large base of software. Of course, avid gamers don't even have to wait for new cartridge releases. They could find Atari 1050 disk drives selling for less than $100 and use this "XE Video Game System" as a full-fledged 65XE-computer.

Here is the Atari Corporation's latest list of new cartridge software adaptations that are on the way. Atari will be selling these titles for about $19.95 each. Just as this story went to press, Atari's **Lode Runner** cartridge arrived at **Antic**.

For arrival by January 1988, Atari now expects: Star Raiders II, Blue Max, Battlezone, Ballblazer, Rescue on Fractalus, David's Midnight Magic, Hardball, Fight Night, Barnyard Blaster, Archon and One-on-One Basketball.

By March 1988, Atari expects to release: Food Fight, Desert Falcon, Crossbow, Necromancer, Ace of Aces, Gato.

SUMMARY

All three of the game systems examined here do a good job of entertaining. All three systems should have an adequate number of high quality game cartridges available by the time you read this. I thought the Nintendo had especially good graphics, but the Sega's games were perhaps a bit more sophisticated.

Any one of the three would be a good choice, if you are positive that the only thing you will ever want to do with your equipment is play games. But of course—as the Atari Corp. is counting on to boost sales—the XE Video Game System is the only one that can be connected to a disk drive to function as an outstanding 8-bit personal computer. ■

INSIDE GENIE
continued from page 27

ONLINE SOURCES

GENIE
401 N. Washington Street
Rockville, MD 20850
(800) 638-9636

COMPUSERVE
500 Arlington Center
Box 20212
Columbus, OH 43220
(800) 848-8199
In Ohio: (614) 457-8600

EXPRESS!
($10, PD0081),

BACKTALK
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ROMAN NUMERAL TRANSLATOR
continued from page 33

To keep Roman Numeral Translator as short as possible, the program is designed to handle the kind of data that is normally encountered in the Roman numeral system. This means it is not equipped to convert exceptional mathematical cases such as negative numbers, non-integers, or the little-used feature of placing a bar over a Roman digit to multiply its value by 1,000.

Also, syntax-checking is beyond the scope of this small program, so if you enter a number that does not follow the legal structure of either the Roman or Arabic numbers, you'll probably get an inaccurate or meaningless result.

The Translator's main loop, lines 500-520, accepts input, calls the appropriate subroutine to do the conversion, and displays the result. The Roman-to-Arabic conversion takes place in the subroutine in lines 100-180, using the DATA line 600. (Line 600 contains both letters and numbers, so be sure to distinguish between the numeral 1 and the letter I.) Lines 200-290, plus the subroutine on line 50 and the DATA line 610, do the conversion from Arabic to Roman. Listing on page 70 ■

*This is the first **Antic** appearance by David Stone, a freelance musician from St. Louis, Missouri. He has been enthusiastically programming his Atari 400 (now upgraded to 48K) since receiving it for Christmas in 1981.*

BIG LETTERS
continued from page 31

Big Letters displays are created beforehand. Then, Big Letters will display each one, one at a time, like a slide show.

Begin by creating several display pages. As you complete each page, you must merge it into the program in memory by pressing [CONTROL] [M].

The [CONTROL] [M] function takes the current display from the editing screen, translates the display into a BASIC subroutine, and appends it to the end of the program in memory.

When you have completed all required pages, press [CONTROL] [R] to start the review routine. This routine lets you display (and videotape) any or all pages in the large-character text modes. The [START] and [SELECT] keys control forward and reverse page-flipping, while the [OPTION] key returns you to the editing screen.

When you're finished, press the [RESET] key. The subroutines that Big Letters created for you begin at line 10000. To store these subroutines, Disk users should type LIST "D:FILENAME.LST",10000,32767. (Cassette users, type LIST "C:",10000,32767).

To use these display subroutines in your own BASIC programs, simply ENTER them into memory. Disk users should type ENTER "D:FILENAME.LST", Cassette users type ENTER "C:". (Remember, these display programs use line numbers above 9999, so make sure your original BASIC programs *don't*.)

Note: After appending a page to the program in memory, pressing [SHIFT] [CLEAR] erases your work from the string-handling part of the program by refilling all strings with blank spaces. You are then returned to the introductory display, where you can select the mode to work with next.

PROGRAM TAKE-APART

Line 50 executes the introductory display routine starting at line 1570 where mode 1 or 2 is selected, then executes the appropriate editing window starting at line 520.

Lines 60-530 accept and process all keyboard activity and displays the editing windows.

Lines 540-560 initialize our strings.

Lines 570-890 set up editing windows.

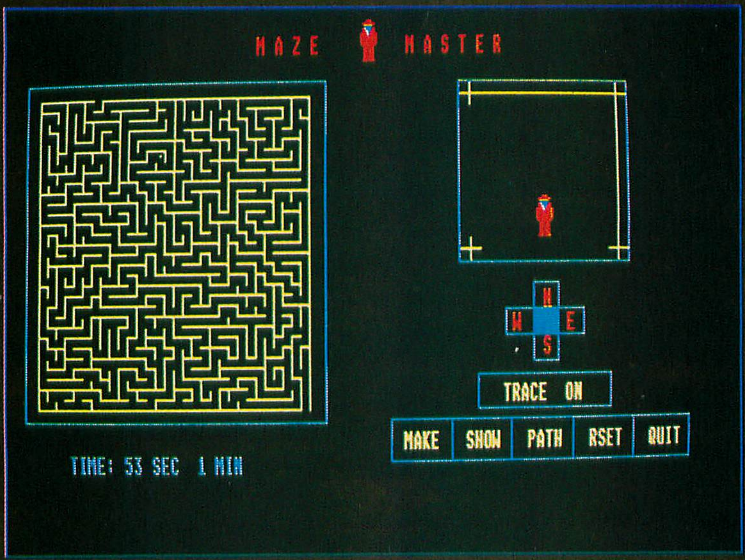
Lines 1180-1185 changes all &"] characters to inverse video.

Lines 1410-1570 append all text in the editing window to the end of the program in the form of program statements.

Lines 1580-1600 contain the error trapping routines.

Lines 1610-1720 contains the introductory display routine. Listing on page 64 ■

*Jerry Vanden Bosch is a lieutenant colonel in the U.S. Air Force working with NASA. This is his first publication in **Antic**.*



Maze Master

Random ST BASIC mazes forever

By PAUL PRATT *and* STEPHEN EVERMAN

Like finding your way through mazes? Maze Master is here to give you an endless supply of randomly generated mystery paths. Written in ST BASIC, Maze Master creates maps ranging in size from 3×3 to 30×30 squares. A color monitor is required.

TYPING IT IN

Using ST BASIC, carefully type in the program and save a copy to disk. Next, run TYPO ST and ask it to proofread the program you just typed in. Compare the TYPO ST table it generates against the TYPO ST table printed in the listings section. If any of the values don't match, there may be a typing error in that line. Check it again, very carefully.

Those of you with this month's Antic Disk will find a copy of Maze Master on Side B, under the name MAZE.BAS.

PLAY MAZE MASTER

The upper left side of the screen contains the box in which the maze will be generated. The maze walls are yellow, as is the dot that represents you. To the right is a box with an extreme closeup of the particular sector you're occupying. You're wearing your favorite maze-

__Antic__ welcomes back to these pages the prolific BASIC ST game programmers, Pratt and Everman. We have accepted a whole new batch of imaginative ST adaptations of classic games from the authors of Super Star Trek (__Antic__, January 1987), Deduction (December 1986) and Hangman (November 1986). See Pascal Towers, the special ST disk bonus by this team, in the current issue.—ANTIC ED

continued on next page

solving costume—a dapper red suit and hat. Below that is the Direction Selector. Click on North (up), South (down), East (right) or West (left) to move in that direction.

Immediately below the Direction Selector is the Trace Box. "Trace" is the option that shows you where you've been. Without it, all you can see is your immediate position.

And below the Trace Box is the Options Box, with the choices MAKE, SHOW, PATH, RESET and QUIT.

When you RUN MAZE.BAS, the first thing you're asked is to click on MAKE. Then, with the pointer in the Maze Box, hold down the button and drag to the desired maze size. Click on the right mouse button to accept the dimensions, or the left button to resize. When the maze is ready, you'll see the small yellow dot and one or more walls. Now you're ready to go.

If you want to see where you're headed, click on SHOW. This draws the whole maze onscreen—or prints it to a printer, in case you prefer solving mazes with a pencil. Clicking on PATH simply shows the correct path, in red, from the beginning of the maze to the end. You can click on either SHOW or PATH any time—before, during or after solving the maze.

If you're completely stuck and and don't want to spend time extricating yourself and finding unexplored areas, press RESET, which redraws the current maze and lets you start over. To quit, just click on QUIT, which puts you back into ST BASIC command mode. Listing on page 71 ■

ST Disk Bonus

Pascal Towers

Program by Paul Pratt *and* Stephen Everman

Antic proudly presents one of our most unusual disk bonuses. Pascal Towers is a flashy, lightning-fast Personal Pascal version of the 4,000-year-old game that previously appeared in our May 1987 issue as Pratt and Everman's ST BASIC *Antic Towers.*

The object of the Towers game is diabolically simple. You must transfer all the hoops you start with from the left pole to one of the other two poles—one hoop at a time and in the least number of moves. But you can't place a larger hoop on top of a smaller one! Three hoops shouldn't take much more than seven moves to transfer. Eight hoops, however, won't require less than *255* moves.

Pascal Towers is written in Personal Pascal, the smooth, powerful ST programming language from Optimized Systems Software (reviewed in **Antic**, May 1986). Pratt and Everman adapted *Antic Towers* into Personal Pascal as a learning project to teach themselves the language.

Unfortunately, we haven't yet found enough Personal Pascal programmers among **Antic's** readers to justify using our limited page space to publish listings in this outstanding language. However, this month's $5.95 Antic Disk includes *two* versions of Pascal Towers. For Pascal programmers who want to see how this game is put together, or to compare the listing with the May 1987 BASIC version, the source code is on disk.

And for those who want to enjoy playing the game, the monthly disk also includes a "runtime" version of Pascal Towers that can be used *without* the Personal Pascal language. For instructions on operating the game, choose selection 5 on the Main Menu of Side B.

The ST Help File on Side B explains how to transfer **Antic** ST programs to a 3 1/2 inch ST disk. Or if you use ANTIC ONLINE on CompuServe, we plan to have both versions of Pascal Towers available for no-surcharge downloading from our Software Shelf later this spring.

Phone toll-free to the Antic Disk Desk at (800) 234-7001 for fast shipment of your March 1988 monthly disk—only $5.95 (plus $2 for shipping and handling) on your Visa or MasterCard. Or mail a $5.95 check (plus $2) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107.

Programmers: **Antic** seeks high-quality Disk Bonus programs for Atari ST or 8-bit—even programs too large or complex for printing as a type-in. Submissions in any language with a runtime version are eligible. ■

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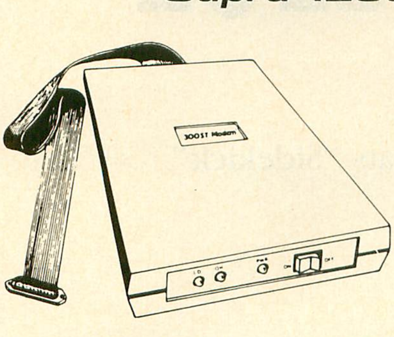
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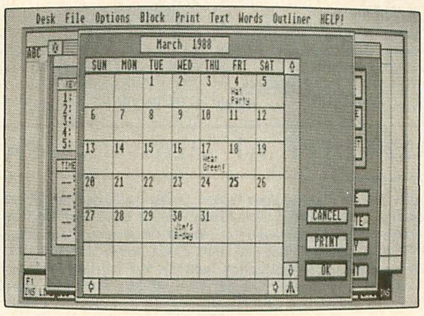
ST desktop set beats "Sidekick"

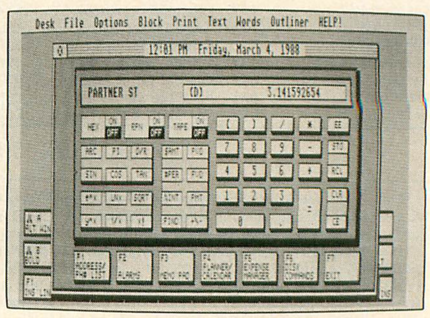
THE ATARI ST DESKTOP, with its file folder and trash can icons, is a good metaphor for a real desktop. Timeworks' **Partner ST** takes that metaphor even farther by giving your desktop an electronic rolodex, memopad, calculator, alarm clock and appointment calendar—in short, just about every office tool you'd keep within reach except paperclips.

Partner ST is a desk accessory—which means that it loads into memory when you turn on your ST and pops onto the screen anytime you click Partner ST on the Desk menu. It can be run either from the desktop or from inside any GEM-based program.

By HEIDI BRUMBAUGH,

Antic Programs Editor





It has an intuitive interface. Experienced computer users probably won't even need documentation to get Partner ST up and running. Even computing novices won't need too much time learning to use these utilities.

Partner has seven different features, which adds up to a lot of memory—so much, in fact, that some larger programs will not run on a 520ST with Partner ST installed. In addition, at least 7K of extra memory must be reserved if you want to use the memopad. Fortunately, you can deactivate some of Partner's features and free the extra memory. If you really want to save memory, there is a mini-version of Partner ST which has four features permanently deactivated.

Partner ST comes on two disks and includes Escape, a desk accessory similar to the arcade game Breakout, and a 60,000-word thesaurus, which is so easy to use that the manual devotes more space to the game.

The calculator itself has enough features to be a solid standalone desk accessory. You can either click on the number keys with the mouse or use the ST's numeric keypad. It offers Reverse Polish notation, trigonometric functions and 10 memory locations, and it allows data entry in radians or degrees. You can perform mathematical and logical operations on hexadecimal or binary numbers. A "tape button" sends output to the printer, turning your ST into a convenient adding machine.

My favorite Partner ST feature is the Memopad, a text editor with powerful features such as insert and typeover modes, wordwrap, a bare-bones search function and cut-and-paste buttons that work on a line of text. You can use the mouse to change cursor position—a nice feature if you're used a GEM-based word processor already.

Users of Timeworks' Word Writer ST should recognize the Memopad Setup adjustments of page size and top, bottom, left and right margins. You can print memo files, and there's also a typewriter mode that lets you send text directly to the printer, a line at a time. Memopad files can be saved to disk, but the current text also remains in computer memory, so each time you activate Partner, the same memo is restored.

The editor formats text as you type, which is not necessarily good—if you make several corrections, the screen blinks constantly as it is redrawn. My only serious problem with the memopad was that it is fairly slow—and gets slower as the file size increases. Fortunately, it has a good-sized type-ahead buffer.

The package includes some vital statistics that load into the Memopad. These files contain information such as area codes, automobile mileage between cities, weights and measures and a metric conversion list, as well as a list of toll-free numbers for airlines, rental car agencies, hotels, etc.

The Partner ST Calendar/Planner displays a calendar for the current month. Click on an individual day to enter appointments, key tasks or a to-do list. You can also enter a one-line memo for that day, which will be displayed on the monthly calendar. You can print information for individual days or the entire month, or you can move through the calendar by month and year.

The Calendar/Planner includes a project planner that keeps track of time spent on special projects. You can then print time totals for the specified period.

There's also an Alarm Clock, Address File and Expense Manager, which share the same kind of interface and are easy to master. You can set an alarm to repeat daily, weekly, monthly or yearly. The address file works like a simple database. You can sort records by last name, index entries by category (such as family and business) and search a record on any field. A predefined function lets you create mailing labels, and you can print mailing label information to disk. If you have a modem, Partner ST will automatically dial a phone number.

Each record in Partner's Expense Manager contains the date, item and amount of the expense. Expenses can be indexed on a main category or two sub-categories. Partner ST prints reports to disk or paper and includes totals for a given time period.

The real convenience of these programs is the way they work together and with other GEM programs. Calendar/Planner information can be used automatically by the Alarm Clock or Expense Manager. Addresses can be printed to disk for your own word processor or database, or even Partner's own Memopad. And Memopad files can be used with other word processors.

Partner ST also gives you access to operating systems commands. Clicking the Disk Commands function button presents a menu that lets you copy, rename, move, delete, show, print and examine information on files.

You can also send printer commands directly to the printer, format disks and create or remove folders. These commands can be indispensable while you're inside another program. For example, you may need to delete files to create disk space—some tasks are performed more easily this way than by dragging things around the desktop.

However, you can perform only one operation at a time. For example, you must select the COPY option for each file, rather than copying several at once.

The manual is excellent—good for beginners and experienced users alike. It has a short start-up section, as well as detailed chapters for each accessory. It has lots of screen shots, so it's easy to follow. But though Partner ST is so easy to pick up, I'd still recommend reading the manual thoroughly. Otherwise, you might miss out on some vital little features. ■

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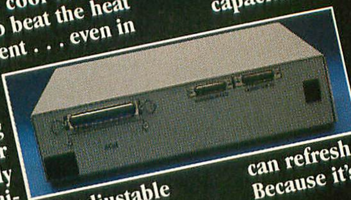
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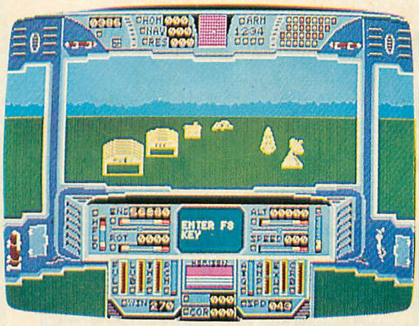
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ST Games Gallery

Reviews: Empire, Super Huey, Breach



SUPER HUEY

Super Huey is to helicopters what Flight Simulator II is to airplanes—a *true* simulation. But don't panic! A built-in "school" mission teaches the basics of flying a helicopter.

While the manual isn't as comprehensive as Flight Simulator's, it discusses the conventions of helicopter control and explains the main control systems. Flight controls are simulated with the mouse, while computer, navigation and weapons control commands are entered via the keyboard. Because of the different motions and button combinations required to fly Super Huey with a mouse, practice can be frustrating. But practice makes perfect.

This first-person simulator has a detailed control panel and makes excellent use of the ST's graphics. Some 33 functioning instruments, mostly analog or digital gauges, are displayed. The views from the large front windshield and smaller side windshields near the floor are excellent.

Most of the graphics detail, however, is concentrated in the cockpit display. Hostile aircraft and structures below the helicopter are far less detailed, but it's still unnerving to watch an enemy craft fire upon you during the rescue, exploration and combat missions, which you can enter at any time via the on-board computer:

Rescue Mission—You must find stranded military personnel with a limited homing device and carefully established air search techniques. They'll fire signal flares when they hear your engines. A careful landing lets these grateful men climb aboard to head back to base.

Exploration Mission—Map the terrain surrounding your base camp. The area is quite large and might best be explored in stages. Your on-board navigational tools will help, but a certain amount of dead-reckoning and compass savvy won't hurt, either.

Combat Mission—Eliminate the 32-ship enemy force—but with only 20 rockets and 2,000 machine gun rounds. The enemy only attacks from the front, but skillful flying is necessary to avoid their experienced marksmanship.

Despite any gamelike ambience in Super Huey, remember that you must *fly* your aircraft, rather than simply steering in a given direction. This increases the challenge and adds to the realism.—JOHN KINTZ

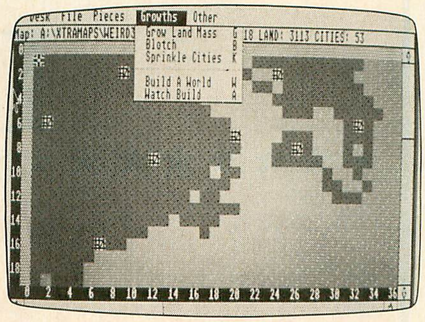
$39.95. Cosmi, 415 N. Figueroa Street, Wilmington, CA 90744. (213) 835-9687.

CIRCLE **250** ON READER SERVICE CARD

EMPIRE

I rarely play a game that's so good and so addictive that I find myself starting a game in the late afternoon, and the next time I look at my watch it's 2 a.m. Credit **Empire**'s magnetism to a captivating, complex scenario and a simple, intelligently designed user interface.

The evil Krellan Empire, aiming toward galactic control, has taken several low-technology planets. Your mission is to stop this onslaught,



planet by planet, by transporting a landing party into a city and using it as a base for planetary control.

As you take control of each metropolis, you direct it to produce war machines. It's usually wise to start with armies, which take five turns to produce (six for the first unit, though: more time is needed to retool factories). After the first dozen armies start moving over the land, you'll need transports to move them to other continents, planes to scout ahead, and ships to control the seas.

Two or three can play, with the computer controlling any or all sides. You can handicap players by giving them less production and worse accuracy in battle, while the computer has two skill settings.

Generate a random planet or load one from the disk, then begin your campaign. On a planetary scale, you need not concern yourself with individual troops: you issue commands to units, directing them to move to a particular place, attack a given city and, later, engage the enemy. This sounds simple, but remember that the screen quickly fills with hundreds of units. Fortunately, the program makes the most of the ST's superior menu and windowing capabilities, making Empire surprisingly easy to play.

You can establish flight paths between cities to bring your planes to

continued on page 49

the front. The escort command moves ships in formation, and a group command mode lets you expand a box around a number of units and give them all the same order. With port cities generating mighty battleships, you soon command the oceans as well—but keep your eyes peeled for the enemy.

The program provides a status report showing how much of the world has been conquered, while the ship report shows the names and locations of your boats. A production map shows what each city is producing, and the world map gives an overview of the entire planet. Survey mode lets you check the orders given to any unit, and a status line at the top of the screen displays unit name, damage and current objective. The manual and reference card are thorough and concise.

My only complaint is that a little of the command logic design could be better. For instance, when you start to transport loading armies, you're not alerted when loading is complete, so vital resources are idle for several turns. Also, ships often get hung up on shorelines waiting for orders, rather than using the shortest route to their destination.—STEVE PANAK

$54.95. Interstel (Electronic Arts), 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7991.

CIRCLE **252** ON READER SERVICE CARD

WordPerfect ST Fixes Coming

Coming soon in **Antic** will be an in-depth review of **WordPerfect**, the eagerly anticipated ST version of the number-one bestselling word processor for IBM PCs. WordPerfect ST ($395) comes on six disks crammed with advanced features. It boasts a 600-page manual, a 115,000-word dictionary, a 10,000-word thesaurus, a disk tutorial and drivers for over 250 printers.

Antic has been testing WordPerfect ST's debut version 4.1 and an update that arrived within a month of the first release. Unfortunately, both of these versions have glitches. Among the problems are onscreen garbage characters after certain operations and a susceptibility to crashes.

WordPerfect Corp. is already aware of the bugs and is rushing an even newer fixed-up version which we'll be reviewing. Meanwhile, WordPerfect Corp. will keep replacing purchasers' early defective versions until all bugs are exterminated.

$395, color or monochrome. WordPerfect Corp., 288 West Center Street, Orem, UT 84057. (801) 225-5000. (800) 321-5906—customer tech support only.

BREACH

Breach puts you in the distant future on some unnamed planet where you command a squadron of interstellar marines. (Any similarity to the movie "Aliens" is not purely coincidental.) The fighting scenarios become progressively tougher and each has a specific goal.

Breach also contains elements of role-playing games. The ultimate goal is survival and the advancement of your squad leader. One squad leader comes on the disk, but you can create others. The leader's death in battle deletes him from the disk.

Individual control of each marine is given in turn. Your options are limited to moving, firing weapons, and retrieving or using objects. When a marine's allotted movement points reach zero, you take control of the next marine down the line until the turn ends. The grenades, demolition charges, rocket launchers, etc. found by your troops are vital to successfully completing the assignments. The computer controls enemy forces and there are no provisions for a two-player game.

The graphics in Breach are nothing special. The marines lack detail and animation is limited. Fortunately, the rich variety of terrain somewhat compensates for this—dirt, grass, beds, tables, computers and elevators. Commands are mouse/icon based.

The best element of Breach is the scenario builder—just as powerful as other "game construction kits" — which lets you create scenarios and missions far more exciting than those on the game disk. You can design as many as five levels of playfield with objects and characters, as well as set mission objectives. You can also design an entire invasion force from scratch and determine individual strengths and weaknesses.

Hardcore wargamers will probably find Breach's variations on old themes intriguing, but for the rest of us this ST game just isn't much fun.—HARVEY BERNSTEIN ■

$39.95. Omnitrend Software, P.O. Box 733, West Simsbury, CT 06092. (203) 685-6917.

CIRCLE **251** ON READER SERVICE CARD

ST MIDI

Reviews: CZ-Android, CZ-Patch

By JAMES PIERSON-PERRY

CZ-ANDROID

The **CZ-Android** is a "must-have" ST program for users of the popular and affordable Casio synthesizers. This patch editor features the innovative "Droid" function, which brings artificial intelligence to automated patch creation. (A "patch" is the instrument control setting used for a particular sounds.) As of this writing, all Casio synthesizers up through the CZ-1 are supported. One single-sided disk can hold 146 banks (2,336 sounds).

The GEM-based CZ-Android is easy to use. In fact, it's almost a shame that the manual is so clear and informative, because you'll rarely need it.

Two patch banks can be kept in memory at once. You can customize patch banks easily, select an entire bank for copying or send it to the synthesizer. You can specify MIDI channel, synthesizer model and degree of "safety" to keep you from performing an operation you don't really want to perform. Unfortunately, MIDI-through with rechannelization is not supported.

The real meat of the program is in the patch editor module. The editor screen shows all patch parameters in a logical and tidy fashion. The graphic representations of the DCO and vibrato are handy for visualizing the patch elements. All parameters can be altered with the mouse, but the editor doesn't permit illegal parameter values or settings.

Any of the six patch envelopes can be selected and shown as a graph of level versus time, but only a single envelope can be displayed at a time—showing at least the three envelopes per line would be better, as it is *their* interaction that provides the overall sound. And only trial and error will help you adjust the playing time of the patch.

Tired of synthesizing? Put the Droid to work. This routine either tries to distort your current patch data or creates an entirely new patch. Either way, artificial intelligence procedures gear the results toward useful sounds rather than random noise. It's great fun to turn the Droid loose and see what emerges, but it's no substitute for intelligent patch programming.

CZ-Android can be copied to another floppy or hard disk, but the original disk must be in Drive A for it to load.

$99.95, color or monochrome. Hybrid Arts, Inc., 11920 West Olympic Blvd., Los Angeles, CA 90064. (213) 826-3777.
CIRCLE 277 ON READER SERVICE CARD

CZ PATCH

I have used Dr. T's **CZ Patch** heavily for over a year and can recommend it. Its main strengths are multiple graphic displays of line envelopes and advanced editing features. Against these must be balanced the lack of graphical editing and automated patch creation. It supports the Casio CZ-101, 1000, 3000, 5000, but doesn't work with newer models such as the CZ-1 or 230S.

CZ Patch, the first ST Patch editor program for Casio synthesizers, comes on a heavily copy-protected disk (backups cost $10). The manual is fair, but terse to the extreme. It has no screen pictures, and the photo-reduced text is hard on the eyes. The synthesizer must be directly connected to the ST—you can't use a master keyboard with MIDI data rechannelization.

Typical of Dr. T software, this program doesn't follow standard GEM usage, thus violating a perceived standard ST user interface. More importantly, it doesn't allow desk accessories either. But despite these drawbacks, the program does work extremely well.

There are two basic functions: Patch Librarian and Patch Creation/Editing. All operations can be done by both mouse or keyboard control. Up to four banks of patches can be kept in memory at once. Creating a custom patch bank is as simple as clicking on and dragging a patch from a displayed bank and moving it to its new location. The patch file format comes straight from the MIDI system-exclusive dump, meaning that the data is received and stored exactly according to the published Casio MIDI implementation guide. About 87 patch banks (almost 1,400 Patches) can be stored on a single-sided disk.

The main interest, however, probably lies in the patch editing functions. All patch parameter data can be modified and tested immediately from the edit screen for effect on sound timbre. Any changes made to the patch can be tested immediately by pressing the right mouse button, which sounds middle C on the keyboard.

When first shown, all envelope data is given in a time-based format rather than the Casio standard rate/level format, but you can toggle between the two. The use of a time axis is helpful, particularly when dealing with sounds that have a delay or echo effect.

Specialized patch-editing options include: insert and delete an envelope segment, copy an entire voice or single envelope from any patch currently

continued on page 52

Rick's Games Cafe

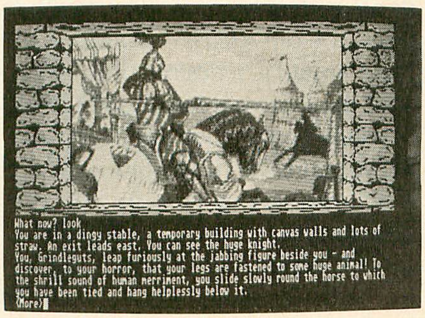
Six ST entertainments reviewed

By RICK TEVERBAUGH

TRACKER, SENTRY, KNIGHT ORC

Firebird's **Tracker** is a shoot-em-up that's a bit reminiscent of the classic 8-bit space game, Star Raiders. Except that Tracker is played over a huge maze of lines which take you from place to place, and junctions where most of the combat takes place.

You control up to eight skimmers in each game. A skimmer starts in one of the safe areas outside the grid. The object is to reach the center of the grid and destroy the centerpoint sector. Along the way you'll find defenders and scouts to destroy. Plasma balls, your main weapon, are fired by pressing the left mouse button. The mouse is used to guide your craft, but it's best to use the automatic pilot when the



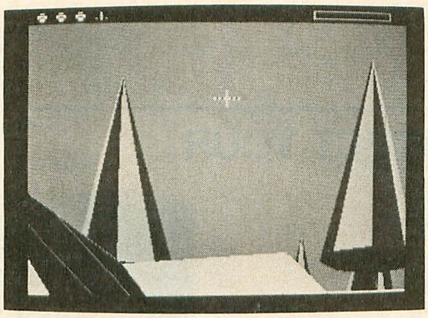
ship isn't threatened. Your time is better spent monitoring the enemy positions on the numerous map displays at your command. The program will sound yellow alert when trouble is approaching, and red alert when you're already in dutch.

Each maze is different, so a strategy that works well on one won't always work on the next. But it is the mix of strategy and arcade features that keeps the game fresh and keeps you *in* the game long after you've forgotten where you've put your other games.

Another new Firebird game that is just forgettable is **Knight Orc**. I've only been playing computer games for about eight years, but it took me two hours just to figure out how to get out of a garbage dump and communicate with the first inhabitant I encountered.

Of the 36 pages in the manual, only nine are devoted to game mechanics and features. The other 27 pages are a novella. You're an orc in a place similar to medieval England. The graphics are entertaining but not as good as some past efforts.

Finally, there's **The Sentry**, possibly the most difficult program I've



ever had to describe. Most other games are similar enough in form or playing style to draw some familiar comparisons, but when the game system and object are so completely new and original, my job becomes much harder—but the overall enjoyment of the game grows. The Sentry's game system is unusual, but still solid in thought and design.

You must avoid The Sentry while absorbing energy on any of the thousands of landscapes included on the disk. Some of the energy is picked up from objects already on the surface when you land. Others can be created once you land, then absorbed.

Despite being played on a two-dimensional screen, the game is played in three dimensions. It is vital to climb higher on each landscape, not only to better see what can be absorbed, but also to have a chance to destroy The Sentry before its hateful eye-beam catches you and steals your life.

The amount of energy you pick up on one landscape before destroying The Sentry will decide which landscape is next. If the next screen is too difficult, you can go back and replay the previous landscape, absorb more or less energy and then be transported to a different site for your next challenge.

$44.95 each. Firebird Licensees, Inc., 71 North Franklin Turnpike, Waldwick, NJ 07463. (201) 444-5700.

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RINGS OF ZILFIN

Another graphic adventure of this ilk is **Rings of Zilfin**. The object here is to find the famous rings and conquer Lord Dragos. The classes of your band of characters are also different and include humans, halflings, dwarves, elves and zilfins. But the biggest difference is in the variety and number of foes (or minions of darkness, as they're called).

$39.95. Strategic Simulations, 1046 N. Rengstorff Ave., Mountain View, CA 94043. (415) 964-1200.

CIRCLE **275** ON READER SERVICE CARD

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THE BARD'S TALE

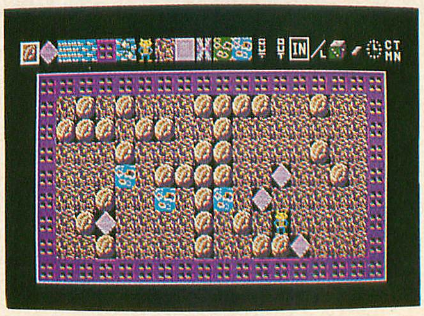
The Bard's Tale is out for the ST and it's about time. This game has long been a staple for other machines and now that it finally has made an appearance, I can only say that the wait has been worth it.The Bard's Tale is a graphics role-playing adventure. You create your own band of characters in classes such as Warrior, Paladin ("Have Mace, Will Travel"), Rogue, Bard, Hunter, Monk, Conjurer, Magician, Sorcerer and Wizard. I always lean toward being the Bard, because my favorite line from the manual is: "When the going gets tough, the Bard goes drinking."

Movement and most input is handled via the mouse. Equip your band well and then go out to release the city of Skara Brae from the evil influence of Mangar.

Of the two games, I'd say The Bard's Tale is a bit more attractive, but Rings is a bit easier to get into. Both are attractive packages.

$49.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7991.

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BOULDER DASH CONSTRUCTION

Boulder Dash Construction Set is part of a new line called Maxx Out, from the Epyx stable of games. I'd mostly recommend it for Boulder Dash fanatics who know the game inside and out and want new horizons and challenges. They certainly can be created here.

A major problem with the package is its scant documentation. What there is assumes an intricate knowledge of the game system. ■

$24.95. Epyx, 600 Galveston Drive, P.O. Box 8020, Redwood City, CA 94063. (415) 366-0606.

CIRCLE 276 ON READER SERVICE CARD

Rick Teverbaugh of Indiana is one of the most active game reviewers in the U.S. The title for these collected reviews comes from the film "Casablanca" where Bogart ran "Rick's Cafe Americain."

ST MIDI REVIEW
continued from page 50

in memory, swap voices within the patch, and compare the edited patch with its original version. Individual envelopes can also be saved to disk.

An extremely useful feature not found in any other CZ patch editor to date is envelope scaling, which can be done with respect to time (rate) or level. You can stretch or compress the patch sound to a desired time, or balance the relative volumes (DCA levels) of patches used when the CZ is played in multi-timbral mode. Since there is only one output jack on the synthesizer, this lets you adjust the sound mix to prevent voices from being lost in the background. ■

$129, color or monochrome. Dr. T's Music Software, 220 Boylston Street, Suite 306, Chestnut Hill, MA 02167. (617) 244-6954.

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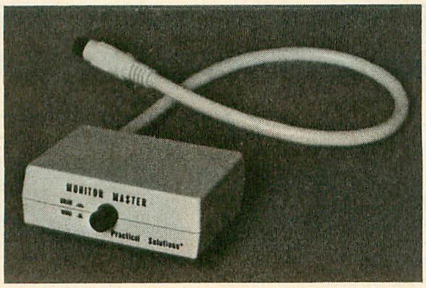

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ST Toolbox

Reviews: Monitor Master, Uninterruptible Power Supply



Mary Rhomberg Lavery

MONITOR MASTER

ST owners who use both color and monochrome monitors will recognize this ritual: Turn off monitor A, unplug its cable from the ST, connect the other cable, turn on monitor B and reboot the ST. The phrase "royal pain" seems to come to mind.

Enter the **Monitor Master**, a palm-sized plastic interface box. Both monitors plug into it and an output cable connects it to the ST video port. It draws power from the monitors, so you don't need a separate power supply. A knob toggles between the two monitors.

Though switching monitors will make the ST reboot anyway—there's no other way for the ST to change resolution—there are a couple of public domain programs that ease the pain: Eternal, a RAMdisk that survives system reset and holds files while switching monitors; and Megaboot, which maintains separate DESKTOP.INF files for medium and high resolution, choosing the appropriate one for the monitor you're using.

If your ST has an RF modulator, Monitor Master can pull a composite video signal from a second video output and send it to a composite monitor or VCR. Connect it with a standard RCA phone jack cable. Another auxiliary output provides the monophonic audio-out from the monitors and can be hooked into your stereo system, greatly improving the sound quality for music programs and games with sound effects.

The only problem is that if both monitors are turned on while close together, the screen image will shake slightly. The monitors are the cause, not the interface. You can put two feet or a thick metal barrier between the monitors, or simply turn off the one you're not using.

The bottom line is that if you use both monitors, you need the Monitor Master. I'd even suggest buying it solely for musical applications. It's much easier than installing an audio-out jack in your monitor, and it won't void your warranty.—JIM PIERSON-PERRY

$49.99. Practical Solutions, Inc., 1930 East Grant Road, Tucson, AZ 85719. (602) 884-9612.
CIRCLE **258** ON READER SERVICE CARD

UNINTERRUPTIBLE POWER SUPPLY

Where I live, about every two months the power blinks out for a second or two. That's all it takes: my computer forgets its program and reboots; my VCR forgets *its* programming and blinks like a traffic light at 2 a.m. And you don't know misery till your wife finds out that her TV programs weren't recorded.

The solution is the Sendon **Uninterruptible Power Supply** (UPS). Just plug an appliance (typically your computer) into the UPS, then plug the UPS into a wall socket. While power is normal, it's business as usual, but when the power goes out, the UPS takes over from the line current and powers whatever is plugged into it. If the power is off for a while, the UPS gives you time to save your work and shut down your equipment.

The 300-watt UPS should power one monitor, the computer and floppies for about 15 minutes—plenty of time to save your work. You should not overload the UPS (by plugging in items requiring more than 300 watts—like a hair dryer). While the computer itself takes little power, the monitor and hard drive use a lot—remember, a hard drive runs constantly, whether or not you're saving or loading anything.

The front panel has switches to turn the unit on and to activate the alarm mode. When the alarm mode is on, it beeps if the power fails. (This is sort of superflous, as you usually *know* when the power fails.) A red light on the front also indicates the level of battery charge. As the battery drains, the light flashes faster, until it stays on constantly and the battery is drained. The UPS has an automatic surge suppressor and noise attenuator, and it's also available in 400 watts with four plugs, and 500 watts with six plugs.—DAVID PLOTKIN ■

$239.95. Computer Parts Galore Inc., 56 Harvester Avenue, Batavia, NY 14020 (716) 343-6133.
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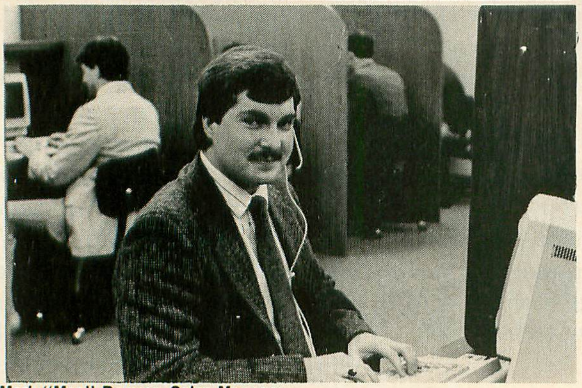
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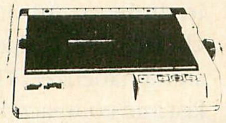
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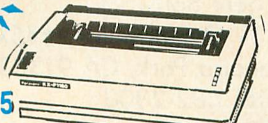
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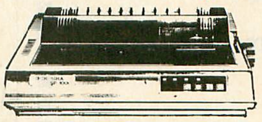


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CIRCLE **271** ON READER SERVICE CARD

Reviewed by Martin Brown

Regent Word II is a relatively simple WYSIWYG word processor for creating and printing large documents. In many respects it's an improved version of 1st Word, but, unlike 1st Word, certain features, such as right margin justification are not shown onscreen.

The GEM-based program has fully usable desk accessories and pull-down menus for file, edit, search, style, special and print commands. And it's *fast*—documents that take several seconds to load into 1st Word appear almost instantly in Regent Word II. Top-to-bottom scrolling occurs in the wink of an eye, and you need not close your document in order to print it, or fill up disk space with annoying backup files.

But because Regent Word II files are not saved in an ASCII format, they can't be read in their natural state. However, you can *save* in ASCII format, which means you can import text files from other word processors.

Creating a document is a snap. To alter the margins and page format information on the work screen, just click on the appropriate setting and follow the prompts at the top of the page. Also, reformatting is done automatically at print time. (Somehow, I could never quite get the hang of reformatting 1st Word documents.) Other formatting requests, like bold or italics, occur right on the screen and almost instantly.

Regent Word II is slow at selecting the block to format, however. With 1st Word, you can point at the beginning of the block and drag it to the end, if it is all on the same screen. With Regent Word II, you must use the function keys or pull-down menus.

Special features of Regent Word II include a 30,000-word spelling checker, a calculator, mail merge and an alphabetizer. The spell checker is fast and compact. Because of a unique compression scheme, words can be added without clogging up memory and slowing down the spelling access.

The four-function calculator lets you enter numbers directly, with the results appearing at the top of the screen in the command line area. Unfortunately, the math cannot be "built-in" to your document for automatic column tabulation. The alphabetizer lets you create a list and have Regent Word II reorder all the lines.

Regent Word II has 15 built-in printer drivers and the easiest printer driver creation program I've ever seen. It took me less than five minutes to set up a new driver for my printer, and it worked flawlessly on the first try.

On the negative side, Regent Word II is copy-protected. I understand the point of protecting "simple-to-use software that really requires no manual." But it always scares me to depend too much on a program that could be knocked out by inadvertent contact with the increasing number of magnetic devices in my life. Still, you *can* install Regent Word II onto your hard disk.

Regent Word II also only lets you display one document at a time. This doesn't prevent merging documents or swapping portions of documents. But you can't, for instance, view a draft that you want to preserve on disk as a blueprint for another document. The spelling checker, while proficient, is not quite state-of-the-art. Unlike Thunder!, it displays words ending in -ed or -ing as possible mistakes. But the documentation, while skimpy, is well-written, and Regent Software supports its customers with an excellent technical service phone line and reasonable upgrade policies. ■

You're looking at a rehabilitation center for the mentally retarded.



A few blocks south of Market Street in San Francisco, there is a restaurant.

The interior was designed by some of the hottest names in the business, but it is nothing revolutionary.

The food is all well prepared, but, again, is nothing you can't find someplace else.

What does make this restaurant different from any other restaurant is something that you'd probably never notice: it is staffed by people with mental retardation.

The restaurant is called Esther's Ironworks Cafe. And, aside from turning out some pretty tasty Mufaletta sandwiches, it acts as a training ground for people with mental retardation.

Helping them learn skills in all aspects of food service from washing the radicchio to cleaning the dishes.

To date, over 20 Esther's employees have quit. To go on to other jobs throughout the Bay Area.

Esther's is just one of the innovative programs run by the Association for Retarded Citizens designed to help people with mental retardation hold jobs and live on their own. In short, to become productive, self-sufficient members of the community.

But we can't do it alone: your help is desperately needed. Please write to us, or call us at 415-931-3330 for more information.

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DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

DOS COMPATIBILITY: All 8-bit programs published by **Antic** are tested to work with Atari Disk Operating System (DOS) 2.0S and 2.5—*not* with the incompatible DOS 3.0. DOS 2.0S is available on each Antic Monthly Disk. Copy the DOS.SYS and DUP.SYS files.

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789 0123456789

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL S
	CTRL A		CTRL T
	CTRL B		CTRL U
	CTRL C		CTRL V
	CTRL D		CTRL W
	CTRL E		CTRL X
	CTRL F		CTRL Y
	CTRL G		CTRL Z
	CTRL H		ESC ESC
	CTRL I		ESC CTRL −
	CTRL J		ESC CTRL =
	CTRL K		ESC CTRL +
	CTRL L		ESC CTRL *
	CTRL M		CTRL .
	CTRL N		CTRL ;
	CTRL O		SHIFT =
	CTRL P		ESC SHIFT CLEAR
	CTRL Q		ESC DELETE
	CTRL R		ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	人 CTRL ,		CTRL X
	人 CTRL A		CTRL Y
	人 CTRL B		CTRL Z
	人 CTRL C		ESC SHIFT DELETE
	人 CTRL D		ESC SHIFT INSERT
	人 CTRL E		ESC CTRL TAB
	人 CTRL F		ESC SHIFT TAB
	人 CTRL G		人 CTRL .
	人 CTRL H		人 CTRL ;
	人 CTRL I		人 SHIFT =
	人 CTRL J		ESC CTRL 2
	人 CTRL K		ESC CTRL DELETE
	人 CTRL L		ESC CTRL INSERT
	人 CTRL M		
	人 CTRL N		
	人 CTRL O		
	人 CTRL P		
	人 CTRL Q		
	人 CTRL R		
	人 CTRL S		
	人 CTRL T		
	人 CTRL U		
	人 CTRL V		
	人 CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key. Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key 人 instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL			STANDARD		
		CTRL F	/		/
		CTRL G	\		SHIFT +
		CTRL N	—		SHIFT −
		CTRL R	-		−
		CTRL S	+		+

HOW TO USE TYPO ST

TYPO ST is the automatic proofreading program for checking **Antic's** ST BASIC type-in listings. It finds any program line where you made a typing mistake.

Type in TYPO ST and SAVE a copy to disk before you RUN it. Now type RUN in the command window and press the [RETURN] key, or click on RUN from the RUN menu.

TYPO ST first asks for the name of the file to check. Type the desired filename and press [RETURN]. (TYPO ST will proofread itself if you type TYPOST.BAS as the filename.) Next, TYPO ST asks where you want the TYPO table printed. Type [S] [RETURN] for Screen, or [P] [RETURN] for Printer.

TYPO ST now reads your ST BASIC program and prints out a table of four-number codes—and the line number for each code. Compare your printed TYPO ST table with the **Antic** TYPO ST table published at the end of the program you are checking. If any of your four-number codes don't match the magazine's codes, you have made a typing mistake somewhere in that line. Carefully recheck your line against the published version.

Antic uses a word processor to format ST BASIC listings for publication, so we can indent lines and make the program structure more understandable. ST BASIC doesn't allow indentation and will strip off any spaces between the line number and the first BASIC instruction. Therefore, TYPO ST ignores space characters and does not care how far instructions are spaced apart.

TYPO ST cannot determine if two different characters have been switched within a line. For example, PRINT and PRNIT will look the same to TYPO ST. However, ST BASIC itself catches this error and points it out to you.

```
1000  ' TYPO/ST, (c) 1986 Antic Publishing, by Bill Marquardt
1010   DISK=1: OUTPUT=2: TRUE=(-1): FALSE=0: CHECKSUMMING=TRUE
1020   TV=FALSE: PRINTER=FALSE
1030   print "File to Check:": input FILENAME$: print "Output on:"
1040   print "(S)creen or ": print "(P)rinter ": input DEVICE$
1050   if( DEVICE$="p" )or( DEVICE$="P" )then PRINTER=TRUE else TV=TRUE
1060   if TV then print "Checksum for file: ": print FILENAME$: print
1070   if PRINTER then lprint "Checksum for file: ";FILENAME$: lprint
1080   open "I", #DISK, FILENAME$
1090   while CHECKSUMMING
1100      LINENUMBER=0: CHECKSUM=0: gosub GETALINE
1110      DECIMAL=CHECKSUM: gosub DECTOHEX
1120      OUTPUT$=str$( LINENUMBER )+" :"+HI$+LO$
1130      if PRINTER then lprint OUTPUT$ else print OUTPUT$
1140   wend
1150   close DISK
1160  end
1170  GETALINE:
1180   BLINE$="": on error goto 1150
1190   GOTALINE=FALSE
1200   while not GOTALINE
1210      line input#DISK, BLINE$: if len( BLINE$ )>1 then GOTALINE=TRUE
1220   wend
1230   LINENUMBER=val( BLINE$ )
1240   for CHAR=1 to len( BLINE$ )
1250      OK=TRUE: CHARACTER$=mid$( BLINE$, CHAR, 1 )
1260      if CHARACTER$=" " then OK=FALSE
1270      if OK then CHECKSUM=CHECKSUM+asc( CHARACTER$+chr$( 0 ))
1280   next CHAR
1290  return
1300  DECTOHEX:
1310   DECIMAL=abs( DECIMAL )
1320   HI=int( DECIMAL/256 ): LO=( DECIMAL-( HI*256 ))
1330   HH=int( HI/16 ): HL=( HI-( HH*16 ))
1340   LH=int( LO/16 ): LL=( LO-( LH*16 ))
1350   HI$=chr$( 48+HH-( 7*( HH>9 )))+chr$( 48+HL-( 7*( HL>9 )))
1360   LO$=chr$( 48+LH-( 7*( LH>9 )))+chr$( 48+LL-( 7*( LL>9 )))
1370  return
```

1000 :110B	1060 :13E7	1120 :0A48	1180 :089A	1240 :079B	1300 :0352	1360 :0C29
1010 :0EA2	1070 :140E	1130 :1000	1190 :04C6	1250 :0AEB	1310 :0667	1370 :036B
1020 :071B	1080 :0713	1140 :0274	1200 :0680	1260 :08BB	1320 :0B13	
1030 :12D2	1090 :0661	1150 :0408	1210 :11B9	1270 :0F36	1330 :07E3	
1040 :10E6	1100 :0BBD	1160 :01FF	1220 :0273	1280 :03A8	1340 :0804	
1050 :11A2	1110 :09F0	1170 :034C	1230 :0716	1290 :036C	1350 :0C0E	

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads **Antic**'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME"[RETURN](Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "↖":POSITION 11,1:? "TYPO II"

EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "↖":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

---

text for your programs or videotapes

BIG LETTERS!

Article on page 30

LISTING 1

Don't type the TYPO II Codes!

```
WG 10 REM LARGE-LETTER SCREEN TITLES
FY 20 REM BY JERRY VANDEN BOSCH
PT 30 REM (c)1987, ANTIC PUBLISHING
GZ 35 REM (DO NOT RENUMBER THIS PROGRAM!)

KH 40 BRK=(PEEK(53279)<>5):L=10000:CLOSE
   #1:OPEN #1,4,0,"K:"
KM 50 GOSUB 1290:GOSUB 530
VG 60 GOSUB 90
LF 70 ROW=ROW+1:COL=M+1:IF ROW>29-MD*6 TH
   EN ROW=MD*6-6
TI 80 GOTO 60
ML 90 LINE$=TEXT$(1+20*(ROW+6-6*MD),20*(R
   OW+7-(6*MD))):N=0
HK 100 POKE 752,1:POSITION COL,ROW
IF 110 GOSUB 1480:IF ASC(LINE$(COL-M,COL-
   M))>127 THEN ? CHR$(ASC(LINE$(COL-M,CO
   L-M))-128);:GOTO 130
AJ 120 ? CHR$(ASC(LINE$(COL-M,COL-M))+128
   );
IH 130 POKE 764,255:GET #1,LTR
ZG 140 IF LTR>31 AND LTR<125 THEN 410
CU 150 IF LTR>159 AND LTR<253 THEN 410
OE 160 IF LTR=30 THEN POSITION COL,ROW:?
   LINE$(COL-M,COL-M);:IF COL>M+1 THEN CO
   L=COL-1:GOTO 100
XC 170 IF LTR=30 THEN COL=M+20:GOTO 100
JR 180 IF LTR=31 THEN POSITION COL,ROW:?
   LINE$(COL-M,COL-M);:IF COL<M+20 THEN C
   OL=COL+1:GOTO 100
DV 190 IF LTR=31 THEN COL=M+1:GOTO 100
BD 200 IF LTR=28 THEN POSITION COL,ROW:?
   LINE$(COL-M,COL-M);:GOSUB 510:IF ROW>6
   *MD-6 THEN ROW=ROW-1:GOTO 90
PA 210 IF LTR=28 THEN ROW=29-6*MD:GOTO 90

HC 220 IF LTR=29 THEN POSITION COL,ROW:?
   LINE$(COL-M,COL-M);:GOSUB 510:IF ROW<2
   9-MD*6 THEN ROW=ROW+1:GOTO 90
FT 230 IF LTR=29 THEN ROW=MD*6-6:GOTO 90
```

```
PJ 240 IF LTR=126 AND COL>M+1 THEN POSITI
   ON COL,ROW:? LINE$(COL-M,COL-M);:COL=C
   OL-1:LINE$(COL-M,COL-M)=" ":GOTO 100
XJ 250 IF LTR=155 THEN POSITION COL,ROW:?
    LINE$(COL-M,COL-M);:T=T+1:GOSUB 510:R
   ETURN
KY 260 IF LTR=254 AND COL<M+20 THEN TMP$=
   LINE$(COL-(M-1),20):LINE$(COL-M,19)=TM
   P$:LINE$(20,20)=" "
TE 270 IF LTR=255 AND COL<M+20 THEN TMP$=
   LINE$(COL-M,19):LINE$(COL-(M-1),20)=TM
   P$:LINE$(COL-M,COL-M)=" "
FF 280 IF LTR>253 AND COL<M+20 THEN POSIT
   ION COL,ROW:? LINE$(COL-M,20);:GOTO 10
   0
TJ 290 GOSUB 510
NV 300 IF LTR=156 AND ROW+6-MD*6<T-1 THEN
    T=T-1
UY 310 IF LTR=156 THEN 450
WA 320 IF LTR=157 AND ROW<29-MD*6 THEN T=
   T+1:GOTO 450
YX 330 IF LTR>128 THEN LTR=LTR-128
XQ 340 IF LTR=125 THEN N=0:GOSUB 1290:GOS
   UB 540:GOTO 90
RR 350 IF LTR=3 AND MD=1 THEN MD=2:M=15:N
   =0:GOTO 550
VN 360 IF LTR=3 AND MD=2 THEN MD=1:M=18:N
   =0:GOTO 550
GK 370 IF LTR=7 THEN 900
KA 380 IF LTR=13 THEN 1120
UX 390 IF LTR=18 THEN Q=9900:GOSUB 1410:G
   OSUB 550:GOTO 60
LJ 400 GOTO 100
TH 410 LINE$(COL-M,COL-M)=CHR$(LTR):POSIT
   ION COL,ROW:? CHR$(LTR);
JI 420 IF COL=M+20 THEN GOSUB 510:T=T+1:R
   ETURN
PS 430 COL=COL+1:GOTO 100
OA 440 REM INSERT/DELETE LINE AT CURSOR R
   OUTINE
BX 450 I=ROW+6-MD*6
WI 460 IF LTR=157 THEN TMP$=TEXT$(1+I*20,
   460):TEXT$(21+I*20,480)=TMP$:TEXT$(1+I
   *20,20+I*20)=Z$(1,20):GOTO 490
KI 470 IF I=23 THEN TEXT$(461,480)=Z$(1,2
   0):GOTO 490
QM 480 TMP$=TEXT$(21+I*20,480):TEXT$(1+I*
   20,460)=TMP$:TEXT$(461,480)=Z$(1,20)
TU 490 GOSUB 520+MD*140:COL=M+1:GOTO 90
ZW 500 REM INCORPORATE INPUT/REVISION INT
   O APPROPRIATE STRING
VJ 510 IF ROW+6-MD*6>=T THEN T=ROW+7-MD*6
HM 520 TEXT$(1+20*(ROW+6-6*MD),20*(ROW+7-
   6*MD))=LINE$:RETURN
AZ 530 DIM LINE$(20),Z$(80),TEXT$(480),TM
   P$(480):Z$=" ":Z$(80)=Z$:Z$(2)=Z$
KN 540 TEXT$=" ":TEXT$(480)=TEXT$:TEXT$(2
   )=TEXT$
GG 550 GRAPHICS 0:GOSUB 1480:POKE 710,0:P
   OKE 752,1:ROW=6*MD-6:IF MD=2 THEN 720
ZF 560 REM INPUT/EDIT WINDOW DISPLAY FOR
   MODES 1 & 17
TA 570 COL=19:ROW=0:? "MODES 1 & 17"
JE 580 POSITION 3,2:? "CAPS=ORANGE":POSIT
   ION 4,3:? "lower=AQUA":POSITION 3,4:?
   "INV CAPS=BLUE"
CN 590 POSITION 4,5:? "inv lwr=RED":POSIT
   ION 1,8:? "SHIFT&K=CLEAR":POSITION 1,1
   0:? "CTRL&R=REVIEW"
UD 600 POSITION 1,12:? "CTRL&C=MODE 2":PO
   SITION 1,14:? "CTRL&M=MEMORY"
CX 610 POSITION 7,16:? "GR.1,":POSITION
   1,17:? "CTRL&G GR.17":POSITION 7,18:?
   "DISPLAY"
CD 620 POSITION 15,20:? "":POSITION 1,21
   :? "TEXT WINDOW "
VR 630 POKE 752,1:POSITION 1,22:? "FOR GR
   APHICS 1":POSITION 15,23:? "";
IT 640 FOR I=0 TO 9:POSITION 17,I:? I;"
   ";:NEXT I:FOR I=10 TO 23:POSITION 16,
   I:? I;"";:NEXT I
HA 650 COLOR 124:PLOT 39,0:DRAWTO 39,23
NE 660 IF T<23 THEN FOR I=ROW TO T:GOTO 6
   80
IX 670 FOR I=ROW TO 23
YJ 680 POSITION 19,I:? TEXT$(1+20*I,20*(1
   +I));:NEXT I:IF LTR=156 OR LTR=157 THE
   N RETURN
SB 690 IF LTR=3 THEN 90
ZD 700 RETURN
CO 710 REM INPUT/EDIT WINDOW DISPLAY FOR
   MODES 2 & 18
KR 720 COL=16:ROW=6:? "      GRAPHICS MO
   DES 2 AND 18"
OC 730 POSITION 2,3:? "CAPS=":POSITION 26
   ,3:? "1111111111":POSITION 4,4:? "ORAN
   GE"
HW 740 POSITION 16,4:? "01234567890123456
   789"
ON 750 POSITION 2,6:? "lower=":POSITION 4
   ,7:? "AQUA":POSITION 1,9:? "INV CAP="
   :POSITION 4,10:? "BLUE"
IU 760 POSITION 1,12:? "inv lwr=":POSITI
   ON 4,13:? "RED"
KZ 770 POSITION 15,5:? "
   "
XP 780 FOR I=0 TO 9:POSITION 14,6+I:? I;"
   ":POSITION 36,6+I:? "":NEXT I
JG 790 FOR I=10 TO 11:POSITION 13,6+I:? I
   ;"":POSITION 36,6+I:? "":NEXT I:IF C
   OL<16 THEN 830
VD 800 IF T<11 THEN FOR I=ROW-6 TO T:GOTO
    820
IT 810 FOR I=ROW-6 TO 11
SH 820 POSITION 16,I+6:? TEXT$(1+20*I,20*
   (1+I));:NEXT I:IF LTR=156 OR LTR=157 TH
   EN RETURN
WB 830 POSITION 2,16:? "TEXT WINDOW":POSI
   TION 3,17:? "FOR GR.2"
DP 840 POSITION 15,18:? "
   ":POSITION 5,19:? "CTRL& GFO
   R GRAPHICS DISPLAY"
XC 850 POSITION 6,20:? "CTRL&M FOR WOR
   K TO MEMORY":POSITION 3,21:? "CTRL&R T
   O REVIEW, CTRL&C FOR MODE 1"
ES 860 POSITION 4,22:? "CTRL OR SHIFT &
   K TO START OVER"
RZ 870 IF LTR=3 THEN 90
ZU 880 RETURN
FW 890 REM VIEW WORK IN GRAPHICS MODE 1,
   2, 17 OR 18 DISPLAY
UW 900 IF N>48 AND N<51 THEN GRAPHICS MD:
   GOTO 1000
JB 910 IF N>54 AND N<57 THEN GRAPHICS 16+
   MD:GOTO 1020
ZM 920 ? "":POSITION 3,6:? "FOR GRAPHICS
   ";MD;" (WITH TEXT WINDOW),":POSITION
   6,7:? "TYPE ";CHR$(MD+176);" NOW"
BU 930 POSITION 3,9:? "FOR GRAPHICS ";MD+
   16;" (NO TEXT WINDOW),":POSITION 6,10:
   ? "TYPE ";CHR$(182+MD);" NOW"
JJ 940 POSITION 4,13:? "AFTER VIEWING GRA
   PHICS ";MD;" OR ";MD+16:POSITION 6,14:
   ? "DISPLAY, PRESS ANY KEY TO"
FN 950 POSITION 5,15:? "RETURN TO INPUT/E
   DIT WINDOW":POSITION 15,16:? "DISPLAY"
RG 960 POKE 764,255:GET #1,N:IF N>176 THE
   N N=N-128
UC 970 IF MD=1 AND (N=49 OR N=55) THEN 90
   0
PF 980 IF MD=2 AND (N=50 OR N=56) THEN 90
   0
RW 990 GOTO 960
YF 1000 IF (MD=2 AND TEXT$(201,240)=Z$(1,
   40)) OR (MD=1 AND TEXT$(401,480)=Z$) T
   HEN 1020
MU 1010 GRAPHICS MD+16:N=N+6
MM 1020 GOSUB 1480:? #6;TEXT$(1,200);:IF
   MD=2 THEN 1050
HO 1030 ? #6;TEXT$(201,400);
UZ 1040 IF N=55 AND MD=1 THEN ? #6;TEXT$(
   401,480);:GOTO 1070
JH 1050 IF N=56 AND MD=2 THEN ? #6;TEXT$(
   201,240);:GOTO 1070
AW 1060 POKE 752,1:? :? " TO CHANGE TO GR
   APHICS ";MD+16;" (NO TEXT       WIN
   DOW), TYPE SHIFT & ";CHR$(MD+182)
EQ 1070 POKE 752,1:GET #1,LTR:IF LTR>166
   THEN LTR=LTR-128
XU 1080 IF LTR=39 AND N=49 THEN N=55:GRAP
   HICS 17:GOTO 1020
SP 1090 IF LTR=64 AND N=50 THEN N=56:GRAP
   HICS 18:GOTO 1020
OQ 1100 GOSUB 550:GOTO 60
IC 1101 REM
MT 1110 REM FORCED READ ROUTINE
IF 1111 REM
RY 1120 ? "":? :? L;" GRAPHICS ";:IF N>5
   0 THEN 1140
RP 1130 IF (MD=2 AND TEXT$(201,240)=Z$(1,
   40)) OR (MD=1 AND TEXT$(401,480)=Z$) T
   HEN ? MD;:GOTO 1145
FH 1140 ? MD+16;
CY 1145 ? ":SE.0,2,8:SE.1,12,10:SE.2,9,4:
   SE.3,4,6:SE.4,0,0"
KJ 1150 GOSUB 1190:FOR ROW=0 TO 36-MD*12
GJ 1160 IF ROW=36-MD*12 THEN ? "":? :? L
   +R+1;" RETURN":R=0:GOSUB 1190:L=L+100:
   GOSUB 550:GOTO 60
ZI 1170 GOSUB 1220
SH 1180 IF LEN(LINE$)=0 THEN 1185
UE 1181 FOR CJ=1 TO LEN(LINE$):IF LINE$(C
   J,CJ)=CHR$(34) THEN LINE$(CJ,CJ)=CHR$(
   162)
LN 1182 NEXT CJ
BX 1185 R=R+1:? "":? :? L+R;" POSITION "
   ;Y;",";ROW;":PRINT #6;";CHR$(34);LINE$
   ;CHR$(34);";"
```

continued on next page

```
VT 1190 ? :? :? "CONT":POSITION 0,0:POKE 842,13:STOP
YO 1200 POKE 842,12:? "}":POSITION 16,10:? "WORKING":IF R=0 THEN RETURN
KQ 1210 NEXT ROW
QM 1220 X=20:Y=0:LINE$=TEXT$(1+20*ROW,20*(ROW+1))
KY 1230 IF ASC(LINE$(X,X))<>32 AND ASC(LINE$(X,X))<>160 THEN 1260
EJ 1240 X=X-1:IF X>0 THEN LINE$=LINE$(1,X):GOTO 1230
QA 1250 POP :NEXT ROW
TI 1260 IF ASC(LINE$(1,1))<>32 AND ASC(LINE$(1,1))<>160 THEN RETURN
TC 1270 LINE$=LINE$(2):Y=Y+1:GOTO 1260
TA 1280 REM INTRO DISPLAY/MODE SELECT ROUTINE
UH 1290 GRAPHICS 0:GOSUB 1480:T=1:IF PEEK(1536)=112 THEN 1320
SI 1300 DATA 112,112,112,70,64,156,6,6,6,6,6,6,6,6,6,6,6,7,7,7,7,7,7,65,0,6
OV 1310 FOR LOC=1536 TO 1561:READ X:POKE LOC,X:NEXT LOC
QR 1320 POKE 559,0:POKE 560,0:POKE 561,6:POKE 559,34:POKE 87,1
CE 1330 POSITION 2,3:? #6;"THIS IS GRAPHICS":POSITION 1,4:? #6;"MODES 1 OR 17 TEXT"
LT 1340 POSITION 3,6:? #6;"TYPE ";CHR$(34);"1";CHR$(34);" NOW":POSITION 0,7:? #6;"TO WORK IN THIS MODE"
BM 1350 POSITION 2,13:? #6;"THIS IS GRAPHICS":POSITION 1,14:? #6;"MODES 2 OR 18 TEXT":POSITION 3,15
UV 1360 ? #6;"TYPE ";CHR$(34);"2";CHR$(34);" NOW":POSITION 0,16:? #6;"TO WORK IN THIS MODE":POKE 694,0:POKE 702,64
EJ 1365 GOSUB 1480
YD 1370 GET #1,MD:MD=MD-48:IF MD=1 THEN M=18:RETURN
BZ 1380 IF MD=2 THEN M=15:RETURN
SS 1390 GOTO 1370
IG 1400 REM REVIEW ROUTINE
EF 1410 ? "}":POSITION 4,5:? "REVIEW YOUR WORK IN SEQUENCE,":POSITION 10,6:? "AT YOUR OWN PACE"
YF 1420 ? :? :? :? " START TO BEGIN":? :? " START AGAIN TO ADVANCE"
QX 1430 ? :? " SELECT TO SEE PRECEEDING PAGE":? :? " OPTION RETURNS TO INPUT/EDIT WINDOW"
TI 1440 IF PEEK(53279)=6 AND Q+100<L+R THEN Q=Q+100:GOSUB Q:FOR I=0 TO 25:NEXT I
LU 1450 IF PEEK(53279)=5 AND Q>10000 THEN Q=Q-100:GOSUB Q:FOR I=0 TO 25:NEXT I
WJ 1460 IF PEEK(53279)=3 THEN RETURN
RN 1470 GOTO 1440
JV 1480 POKE 77,0:IF BRK THEN POKE 16,112:POKE 53774,112
BI 1490 RETURN
```

do-it-yourself fantasy worlds Article on page 15

ADVENTURE CREATION KIT

LISTING 1

Don't type the TYPO II Codes!

```
DN 1 REM CREATION
HB 2 REM BY STEPHEN STOUT
QE 3 REM (c)1987, ANTIC PUBLISHING
YZ 10 GRAPHICS 0:POKE 559,0:POKE 16,64:POKE 53774,64:CLR :GOTO 1100
CN 20 A=USR(ADR(SC$),ADR(M2$)+Y*70+X)
CB 30 SOUND 0,0,0,15:SOUND 0,0,0,0
EV 40 ST=STICK(0):IX=(ST=7)-(ST=11):IY=(ST=13)-(ST=14)
UV 50 IF PEEK(764)=28 THEN 670
GY 60 IF IX=0 AND IY=0 THEN 40
DE 70 P=PEEK(40670+IX+20*IY):IF P=0 OR P=32 THEN X=X+IX:Y=Y+IY:SC$(53,53)="k":GOTO 20
SD 80 IF P=35 AND AXE=1 THEN X=X+IX:Y=Y+IY:SC$(53,53)=CHR$(104):GOTO 20
NT 90 IF P=164 AND BOAT=1 THEN X=X+IX:Y=Y+IY:SC$(53,53)=CHR$(105):GOTO 20
YK 100 IF P=37 AND HORSE=1 THEN X=X+IX:Y=Y+IY:SC$(53,53)=CHR$(106):GOTO 20
VN 110 IF P=166 AND KEY>0 THEN KEY=KEY-1:GOSUB 430:X=X+IX:Y=Y+IY:GOSUB 500:GOTO 20
IA 120 IF P=103 THEN KEY=KEY+1:X=X+IX:Y=Y+IY:GOSUB 500:GOSUB 430:GOTO 20
MM 130 IF P=104 THEN AXE=1:X=X+IX:Y=Y+IY:GOSUB 500:GOSUB 430:GOTO 20
CR 140 IF P=105 THEN BOAT=1:X=X+IX:Y=Y+IY:GOSUB 500:GOSUB 430:GOTO 20
JN 150 IF P=106 THEN HORSE=1:X=X+IX:Y=Y+IY:GOSUB 500:GOSUB 430:GOTO 20
UN 160 IF P=96 THEN 370
AP 170 IF P<>44 AND P<>237 AND P<>174 THEN 40
DC 180 MHP=30:MSP=10:IF P=44 THEN MHP=15:MSP=5
JR 190 IF P=174 THEN MHP=5:MSP=2
QH 200 ? "} ATTACK ! HIT TRIGGER"
ER 210 ? "MONSTER'S HIT POINTS: ";MHP:? "YOUR STRIKE POINTS: ";SP
BM 220 A=INT(RND(0)*SP)+1:? "    ";A;"  ":SOUND 0,0,0,15:SOUND 0,0,0,0:IF STRIG(0)=1 THEN 220
PB 230 MHP=MHP-A:FOR I=200 TO 100 STEP -1:SOUND 0,I,10,15:NEXT I:SOUND 0,0,0,0:IF MHP<1 THEN 330
IG 240 ? "} DEFENSE ! HIT TRIGGER"
DH 250 ? "YOUR HIT POINTS: ";HP:? "MONSTER'S STRIKE POINTS: ";MSP
II 260 A=INT(RND(0)*MSP)+1:? "    ";A;"  ":SOUND 0,0,0,15:SOUND 0,0,0,0:IF STRIG(0)=1 THEN 260
RC 270 HP=HP-A:FOR I=100 TO 200:SOUND 0,I,10,15:NEXT I:SOUND 0,0,0,0
SK 280 IF HP>0 THEN 200
JT 290 ? "}":? " YOU ARE DEAD! HIT TRIGGER"
BN 300 FOR I=250 TO 50 STEP -1:SOUND 0,I,10,15:NEXT I:SOUND 0,0,0,0
VB 310 IF STRIG(0)=1 THEN 310
QJ 320 GOTO 670
KW 330 MHP=20:MSP=5:IF P=44 THEN MHP=15:MSP=3
IG 340 IF P=174 THEN MHP=5:MSP=1
DW 350 HP=HP+MHP:SP=SP+MSP
MN 360 X=X+IX:Y=Y+IY:GOSUB 500:GOSUB 430:GOTO 20
XS 370 ? "}":? " YOU WON ! HIT TRIGGER":FOR I=50 TO 250:SOUND 0,I,10,15:NEXT I:SOUND 0,0,0,0:GOTO 310
PW 380 M2$=M1$:X=0:Y=0:HP=25:SP=5:HORSE=0:BOAT=0:AXE=0:KEY=0
KM 390 SC$(53,53)="k"
TG 400 GOSUB 430
CP 410 A=USR(ADR(SC$),ADR(M2$)+Y*70+X)
PM 420 FOR I=250 TO 50 STEP -1:SOUND 0,I,10,15:NEXT I:SOUND 0,0,0,0:GOTO 20
CA 430 ? "} HIT POINTS:";HP;"    STRIKE POINTS:";SP
XA 440 ? "                KEYS:";KEY:? "       ";:IF HORSE=1 THEN ? "HORSE    ";
UH 450 IF AXE=1 THEN ? "AXE    ";
RD 460 IF BOAT=1 THEN ? "BOAT    ";
CV 470 ?
ZW 480 ? "                ESC  TO QUIT"
```

```
ZS 490 RETURN
CO 500 A=USR(ADR(SC$),ADR(M2$)+Y*70+X)
PY 510 L=70*Y+X+70*5+11:M2$(L,L)=CHR$(0):
       SOUND 0,150,10,15:FOR D=1 TO 20:NEXT D
       :SOUND 0,0,0,0:RETURN
NK 520 DATA 225,97
ON 530 DATA 226,98
LV 540 DATA 35,99
JR 550 DATA 164,100
GG 560 DATA 37,101
LZ 570 DATA 166,102
IT 580 DATA 103,103
JX 590 DATA 104,104
KI 600 DATA 105,105
LM 610 DATA 106,106
JD 620 DATA 44,108
PP 630 DATA 237,109
KQ 640 DATA 174,110
NB 650 DATA 96,96
FB 660 DATA 0,47
HP 670 POKE 752,1:POKE 559,34:? "▮  S=SAV
       E  L=LOAD  D=DISK DIRECTORY":? "  P=PL
       AY GAME  R=RE-START  ?=PRINT"
KA 680 ? " OPTION/SELECT TO CHANGE CHARAC
       TERS":? " MOVE WITH JOYSTICK/TRIGGER T
       O DRAW▮":POKE 764,255
ZK 690 SOUND 0,200,10,12:IF CR<0 THEN CR=
       14
BD 700 FOR D=1 TO 10:NEXT D:SOUND 0,0,0,0
       :IF CR>14 THEN CR=0
LK 710 BR=ASC(BR$(CR+1,CR+1)):DR=ASC(DR2$
       (CR+1,CR+1)):SC$(53,53)=CHR$(DR)
FU 720 A=USR(ADR(SC$),ADR(M1$)+70*Y+X)
AN 730 POKE 77,0:P=PEEK(764)
EY 740 IF PEEK(53279)=3 THEN CR=CR-1:GOTO
        690
EC 750 IF PEEK(53279)=5 THEN CR=CR+1:GOTO
        690
YL 760 P=PEEK(764):IF PEEK(764)=255 THEN
       840
KG 770 IF PEEK(764)=58 THEN 890
BM 780 IF PEEK(764)=102 THEN 1330
VT 790 IF PEEK(764)=10 THEN 380
PI 800 IF PEEK(764)=62 OR PEEK(764)=0 THE
       N P=PEEK(764):GOTO 910
MI 810 IF PEEK(764)<>40 THEN 840
WM 820 ? "▮":? "ARE YOU SURE (Y/N)?":POKE
        764,255:GET #2,I:IF I=89 THEN RUN
QQ 830 GOTO 670
TS 840 ST=STICK(0):IX=(ST=6 OR ST=7 OR ST
       =5)-(ST=11 OR ST=9 OR ST=10)
RL 850 IY=(ST=9 OR ST=13 OR ST=5)-(ST=10
       OR ST=14 OR ST=6)
XS 860 IF STRIG(0)=0 THEN SOUND 0,100,10,
       15:L=70*Y+X+70*5+11:M1$(L,L)=CHR$(BR):
       SOUND 0,0,0,0
XN 870 IF IX=0 AND IY=0 OR PEEK(40670+IX+
       20*IY)=175 THEN 730
AI 880 SOUND 0,0,0,15:X=X+IX:Y=Y+IY:SOUND
        0,0,0,0:GOTO 720
UF 890 GOSUB 1240
KW 900 GOTO 1210
PW 910 ? "▮ ENTER NAME ":? " ........":PO
       KE 752,0:? "?";:I=0:POKE 764,255:FL$="
       D:"
DL 920 GET #2,A:IF A<65 OR A>90 AND A<>15
       5 AND A<>126 THEN 920
FF 930 IF A=155 THEN POKE 752,1:? " ";
RH 940 IF A=155 AND I=0 THEN 670
OB 950 IF A=126 AND I>0 THEN I=I-1:? CHR$
       (A);
LD 960 IF A=155 THEN 990
CL 970 IF A>64 AND A<91 AND I<8 THEN FL$(
       I+3,I+3)=CHR$(A):I=I+1:? CHR$(A);
QC 980 GOTO 920
GO 990 FL$(I+3)=".ADV"
GV 1000 MD=4:IF P<>0 THEN MD=8
HA 1010 M1$(7000)=CHR$(0):M2$=M1$:ADRES=A
        DR(M1$):BYTES=LEN(M1$):IO=1
UR 1020 TRAP 1070:CLOSE #1:OPEN #1,MD,0,F
        L$
VB 1030 IF MD=8 THEN FL$="CREATION":? #1;
        FL$
AS 1040 IF MD=4 THEN FL$="":INPUT #1;FL$:
        IF FL$<>"CREATION" THEN 1070
CM 1050 GOSUB 1980:GOTO 1060
ZP 1060 CLOSE #1:TRAP 50000:A=USR(ADR(SC$
        ),ADR(M1$)+70*Y+X):POKE 559,34:GOTO 67
        0
DW 1070 M1$=M2$:CLOSE #1:TRAP 50000:? "▮"
        :? "▮ DISK ERROR! PRESS ANY KEY":POKE
         764,255
CX 1080 GET #2,A
TC 1090 GOTO 670
DL 1100 DIM DM$(125),M1$(7000),M2$(7000),
        FL$(15),SC$(61),FILE$(14),DR$(20)
MS 1110 DIM BR$(15),DR2$(15):RESTORE 520:
        FOR I=1 TO 15:READ BR:BR$(I,I)=CHR$(BR
        )
HE 1120 READ DR:DR2$(I,I)=CHR$(DR):NEXT I
DU 1130 SC$(1,30)="hh▮Lh▮K▮▮▮▮1K↓p←hHe▮PU
        ▮▮i▮▮◆PP"
JG 1140 CLOSE #2:OPEN #2,4,0,"K:"
SC 1150 SC$(31,61)="▮J▮K▮i9▮▮fL▮K▮iF▮K▮▮U
        ▮k▮^←▮▮▮M▮"
JE 1160 M1$=CHR$(0):M1$(7000)=CHR$(0):M1$
        (2)=M1$:M2$=M1$
EP 1170 M1$(282,350)="▮▮▮▮▮▮▮▮▮///////////////
        /////////////////////////////////////
        ////▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮"
AZ 1180 M1$(6722,6790)="▮▮▮▮▮▮▮▮▮////////////
        /////////////////////////////////////
        //////▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮"
VW 1190 FOR I=282+8 TO 6722+8 STEP 70:M1$
        (I,I)="/":M1$(I+52,I+52)="/":NEXT I
MR 1200 X=0:Y=0:GOSUB 1480
EN 1210 GRAPHICS 2:POKE 16,64:POKE 53774,
        64
SD 1220 POKE 708,198:POKE 709,10:POKE 756
        ,146:POKE 752,1:? "▮"
SO 1230 GOTO 670
DS 1240 GRAPHICS 0:POKE 16,64:POKE 53774,
        64
JK 1250 POKE 709,4:POKE 82,13:POKE 752,1:
        POSITION 0,0:? "▮":POKE 709,10
BY 1260 TRAP 1320:CLOSE #1:OPEN #1,6,0,"D
        :*.*":? "DISK DIRECTORY"
QX 1270 INPUT #1;DR$:IF DR$(2,2)=" " THEN
         DR$(3):GOTO 1270
PZ 1280 ? :? DR$:CLOSE #1:TRAP 50000
NB 1290 ? :? " PRESS ANY KEY":POKE 82,2:?
         :POKE 764,255
CF 1300 GET #2,A
AI 1310 RETURN
DA 1320 TRAP 50000:? :? "  DISK ERROR!▮":
        CLOSE #1:GOTO 1290
QH 1330 ? "▮":? "PREPARE PRINTER   PRES
        S ANY KEY":POKE 764,255:GET #2,P:TRAP
        1460:POKE 559,0
RN 1340 DM$="▮▮▮▮▮▮▮▮":CLOSE #1:OPEN #1,8
        ,0,"P:":D=280:? #1:? #1
BP 1350 ? #1;CHR$(27);"A";CHR$(8);
WT 1360 ? #1;CHR$(27);"K";CHR$(200);CHR$(
        1);:DM$="▮▮▮▮▮▮▮▮":? #1;DM$;DM$;DM$;DM
        $;
GD 1370 FOR I=10 TO 62:A=ASC(M1$(I+D,I+D)
        ):IF A=0 OR A=32 THEN A=A*8+144*256:GO
        TO 1420
ZD 1380 IF A=96 THEN A=A*8+144*256:GOTO 1
        420
OD 1390 IF A<97 THEN A=A+32:GOTO 1390
WX 1400 IF A>122 THEN A=A-32:GOTO 1400
DD 1410 A=A-32:A=A*8+144*256
PA 1420 ML=USR(ADR(MOVE$),A,ADR(DM$),8):?
         #1;DM$;:NEXT I:D=D+70
MZ 1430 ? #1;CHR$(10);
GW 1440 IF D=6790 THEN ? #1:CLOSE #1:GOTO
         670
RV 1450 GOTO 1360
IX 1460 POKE 559,34:CLOSE #1:TRAP 50000:?
         "▮":? "PRINTER ERROR!  PRESS ANY KE
        Y"
OQ 1470 POKE 764,255:GET #2,P:GOTO 670
ZV 1480 DIM MOVE$(56):MOVE$="hh▮h▮h▮h▮h▮
        ▮h▮h▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮
        ▮▮▮▮"
IB 1490 CHSET=144*256
SW 1500 IF PEEK(144*256+65*8)=234 THEN 15
        60
ZN 1510 ML=USR(ADR(MOVE$),57344,CHSET,102
        4)
NX 1520 RESTORE 1560
SC 1530 GOTO 1550
TY 1540 FOR I=0 TO 7:READ D:POKE CHSET+A*
        8+I,D:NEXT I
BY 1550 READ A:IF A<>-1 THEN GOTO 1540
TJ 1560 DATA 64,0,0,0,0,0,0,0,0
VC 1570 DATA 65,234,174,186,171,234,174,1
        86,171
MX 1580 DATA 66,1,7,31,127,255,63,15,3
BF 1590 DATA 67,2,10,42,127,42,10,2,0
SZ 1600 DATA 68,204,153,51,102,204,153,51
        ,102
KP 1610 DATA 69,72,178,16,76,33,72,41,18
MY 1620 DATA 70,255,231,239,231,239,199,1
        99,255
UQ 1630 DATA 71,0,24,16,24,16,56,56,0
FR 1640 DATA 72,0,80,32,127,32,80,0,0
OU 1650 DATA 73,4,6,3,255,113,51,22,4
KK 1660 DATA 74,32,124,127,28,28,31,12,0
QJ 1670 DATA 75,0,9,210,252,252,210,9,0
PY 1680 DATA 76,64,198,201,41,41,41,17,2
ZQ 1690 DATA 77,0,42,124,62,124,62,84,0
VF 1700 DATA 78,16,32,32,24,24,32,32,16
DF 1710 DATA 79,255,255,255,255,255,255,2
        55,255
MG 1720 DATA 97,255,136,255,34,255,68,255
        ,17
EA 1730 DATA 98,8,24,28,60,62,126,127,255
```

continued on next page

```
BK 1740 DATA 99,0,16,56,16,124,16,254,16
PV 1750 DATA 100,204,153,51,102,204,153,5
   1,102
SJ 1760 DATA 101,64,148,74,97,150,16,65,1
   0
NZ 1770 DATA 102,255,255,249,129,169,255,
   255,255
FM 1780 DATA 103,0,0,6,126,86,0,0,0
IR 1790 DATA 104,0,84,56,84,16,16,16,16
CJ 1800 DATA 105,16,24,28,30,16,211,118,6
   0
PL 1810 DATA 106,0,96,224,124,126,126,36,
   36
AN 1820 DATA 107,60,60,24,60,90,24,36,66
GM 1830 DATA 108,96,224,28,2,60,64,65,62
OW 1840 DATA 109,0,42,124,62,124,62,84,0
NO 1850 DATA 110,0,0,102,153,24,0,0,0
FR 1860 DATA 111,255,255,255,255,255,255,
   255,255
FP 1870 DATA -1
OK 1880 GRAPHICS 1+16:POKE 559,0:POKE 16,
   64:POKE 53774,64
XL 1890 POKE 708,8:POKE 709,196
TO 1900 POSITION 3,0:? #6;"antic magazine
   ":POSITION 6,1:? #6;"presents"
VE 1910 D=PEEK(560)+PEEK(561)*256+4:POKE
   D+6,7:POKE D+8,7
FQ 1920 POSITION 6,5:? #6;"CREATION":POSI
   TION 2,7:? #6;"BY STEPHEN STOUT"
ER 1930 POSITION 2,20:? #6;"trigger to be
   gin"
ZI 1940 POKE 559,34
WM 1950 POKE 77,0:IF STRIG(0)=0 THEN 1970
UP 1960 GOTO 1950
BM 1970 RETURN
CH 1980 IOCB=832+IO*16
IQ 1990 POKE IOCB+2,7+4*(PEEK(IOCB+10)=8)
OT 2000 AH=INT(ADRES/256):AL=ADRES-AH*256
XQ 2010 POKE IOCB+4,AL:POKE IOCB+5,AH
EG 2020 BH=INT(BYTES/256):BL=BYTES-BH*256
HB 2030 POKE IOCB+8,BL:POKE IOCB+9,BH
BP 2040 ML=USR(ADR("hhh▣LV▣"),IO*16)
AP 2050 RETURN
```

LISTING 2

```
HO 10 REM CREATION, LISTING TWO
OY 20 REM BY STEPHEN STOUT
FJ 30 REM (c) 1985,1987 ANTIC PUBLISHING
DW 35 REM (CREATES LINES 1130,1150 & 1480
    FOR D:CREATION.BAS)
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
RD 80 ? "▣Disk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "      AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")      "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "◙TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "◙TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
IC 1000 DATA 182
KF 1010 DATA 0490490510480320830670360400
   490440510480410610341041041332041041 33
   20316200016000017720315711 2
JL 1020 DATA 1582322001920202082451380241
   050001702242402400341550490490530480 32
   08306703604000510490440540 49
OJ 1030 DATA 0410610340202341652030242331
   851440022302041652030241050701332030 24
   14421416910714122215816900 0
IQ 1040 DATA 1330770960341550490520560480
   320680730770320770790860690360400530 54
   04105807707908606903606103 4
HX 1050 DATA 1041041330021041330011041330
   041041330031041330061041330051600002 40
   01617700114500323000120800 2
AL 1060 DATA 2300022300032080022300041980
   051650052012552082321980061650062012 55
   208224096034155
```

text scrolling deluxe with a powerhouse subroutine

MR. SMOOTHY

Article on page 34

LISTING 1

Don't type the TYPO II Codes!

```
ZR 2 REM SMOOTHY DEMO
MM 4 REM BY KENNETH KAYE
QH 6 REM (c)1987, ANTIC PUBLISHING
CU 10 GOSUB 400:POKE 106,PEEK(740)
VT 20 IF PEEK(106)<>160 THEN ? "Not enoug
   h RAM to continue.":END
IR 30 GOSUB 31000:REM INITIALIZE SCROLLO
   ROUTINE
SW 40 DIM CL$(6),PR$(101),TPC$(12),TPR$(1
   2),POS(14),INP(16),SPT(14),ANS(11)
GJ 45 DIM A$(40):A$="**************** Mr.Sm
   oothy ****************"
JO 70 FOR X=1 TO 14:READ A:POS(X)=A:NEXT
   X
YT 80 FOR X=1 TO 14:READ A:INP(X)=A:NEXT
   X
OO 90 FOR X=1 TO 14:READ A:SPT(X)=A:NEXT
   X
BZ 100 PR$="GRAPHICS MODE (3-15)SPEED (0-
   15)COLUMNROWWINDOW (1-40)COLOR#(1-4)ME
   SSAGE (DEFAULT-PRESS RETURN)"
SA 110 CL$="      "
JJ 130 MS$="MR.SMOOTHY * SMOOTH SCROLLING
    TEXT WINDOWS IN ALL MAP MODES. BY KEN
    KAYE":MODE=3
EP 140 SPEED=10:COL=0:ROW=8:WLEN=10:COLR=
   4:DC=39:DR=23:POKE 559,DMA:CRY$=STR$(1
   1):GOTO 1010
JT 150 GRAPHICS 0:POKE 709,206:POKE 710,4
   :POKE 752,1:MS$=""
LC 152 ? "▣":FOR X=39 TO 0 STEP -3:POSITI
   ON X,0:? A$(1,40-X):SOUND 1,6*X,14,14:
   NEXT X
YC 160 FOR X=1 TO 14 STEP 2:POSITION POS(
   X),POS(X+1):? PR$(SPT(X),SPT(X+1)):NEX
   T X
```

```
MU 165 TRAP 150
CR 170 POSITION POS(1)-6,POS(2):? "ENTER"
   :POSITION INP(1),INP(2):INPUT MODE:GOS
   UB 500
GK 180 POSITION POS(5)+7,POS(6):? TPC$:PO
   SITION POS(7)+4,POS(8):? TPR$
RX 190 TRAP 150:POSITION POS(1)-6,POS(2):
   ? CL$
OU 200 FOR X=3 TO 11 STEP 2:POSITION POS(
   X)-6,POS(X+1):? "ENTER":POSITION INP(X
   ),INP(X+1):INPUT A:ANS(X)=A
FQ 210 POSITION POS(X)-6,POS(X+1):? CL$
YB 212 IF X=5 OR X=9 THEN GOSUB 250
PK 216 NEXT X:POKE 82,0
CO 220 POSITION POS(X)-6,POS(X+1):? "ENTE
   R":POSITION INP(X),INP(X+1):INPUT MS$:
   POKE 82,2
AH 230 IF MS$<>"" THEN 1000
WH 240 MS$="THIS IS GRAPHICS MODE ":MS$(L
   EN(MS$)+1)=STR$(MODE):GOTO 1000
AB 250 CVAL=VAL(TPC$(4,5))-ANS(5)
YC 260 IF CVAL<=0 THEN POSITION 0,18:? "W
   INDOW VALUE WILL EXCEED MAX ":FOR D=1
   TO 500:NEXT D:POP :GOTO 150
AN 270 IF X=9 AND CVAL+1<ANS(9) THEN CVAL
   =0:GOTO 260
MG 280 POSITION 15,12:? CL$
YI 290 POSITION 15,12:? "(1-";STR$(CVAL+1
   );")"
YZ 300 RETURN
UJ 400 MODL=800:TRAP 410:POKE 559,0:GRAPH
   ICS 15:MODL=130
NE 410 GRAPHICS 0:POKE 559,34:RETURN
OX 500 TRAP 535
NK 520 IF MODE>15 THEN MODE=MODE-16
OJ 525 IF MODL=800 AND MODE>13 THEN POP :
   ? "Illegal mode on 400/800 systems.":
   FOR D=1 TO 500:NEXT D:GOTO 150
AU 530 ON MODE GOTO 535,535,540,550,555,5
   60,565,570,580,590,600,535,535,610,620

OZ 535 POP :? "":? "ILLEGAL MODE":? :? "
   NOTE: MODES 12 & 13 ARE TEXT MODES":FO
   R D=1 TO 500:NEXT D:GOTO 150
PL 540 TPC$="(0-09)":TPR$="(0-16)":DC=39:
   DR=23:CRY$="11":RETURN
BL 550 TPC$="(0-09)":TPR$="(0-40)":DC=79:
   DR=47:CRY$="11":RETURN
CO 555 TPC$="(0-19)":TPR$="(0-40)":DC=79:
   DR=47:CRY$="11":RETURN
QD 560 TPC$="(0-19)":TPR$="(0-88)":DC=159
   :DR=95:CRY$="11":RETURN
TV 565 TPC$="(0-39)":TPR$="(0-88)":DC=159
   :DR=95:CRY$="12":RETURN
KZ 570 TPC$="(0-39)":TPR$="(0-184)":DC=31
   9:DR=191:CRY$="2":RETURN
XL 580 TPC$="(0-39)":TPR$="(0-184)":DC=79
   :DR=191:CRY$="350017":RETURN

AC 590 TPC$="(0-39)":TPR$="(0-184)":DC=79
   :DR=191:CRY$="300608":RETURN
ZK 600 TPC$="(0-39)":TPR$="(0-184)":DC=79
   :DR=191:CRY$="300617":RETURN
GB 610 TPC$="(0-19)":TPR$="(0-184)":DC=15
   9:DR=191:CRY$="11":RETURN
JI 620 TPC$="(0-39)":TPR$="(0-184)":DC=15
   9:DR=191:CRY$="12":RETURN
VS 1000 SPEED=ANS(3):COL=ANS(5):ROW=ANS(7
   ):WLEN=ANS(9):COLR=ANS(11)
QV 1010 GNB=VAL(CRY$(1,1))
IV 1020 ON GNB GOSUB 2000,2100,2200
EJ 1030 GOSUB 31500
SM 1040 FOR D=1 TO 500:NEXT D:GOTO 150
NC 2000 GRAPHICS MODE+16:A=1
SI 2010 FOR X=0 TO DR/2 STEP VAL(CRY$(2,2
   ))
SQ 2020 COLOR A:PLOT X,X:DRAWTO DC-X,X:DR
   AWTO DC-X,DR-X:DRAWTO X,DR-X:DRAWTO X,
   X
GI 2030 A=A+1:IF A=4 THEN A=1
LL 2040 NEXT X
AP 2050 RETURN
LD 2100 GRAPHICS 8+16:SETCOLOR 1,0,14:SET
   COLOR 2,0,0:COLOR 1
WG 2110 FOR X=0 TO 191 STEP 4:PLOT 159,0:
   DRAWTO 319,X:PLOT 159,0:DRAWTO 0,191-X
   :NEXT X
DU 2120 FOR X=319 TO 0 STEP -4:PLOT 159,0
   :DRAWTO X,191:NEXT X
AL 2130 RETURN
QO 2200 GRAPHICS MODE:SETCOLOR 4,VAL(CRY$
   (2,3)),VAL(CRY$(4,4)):VAR=VAL(CRY$(5,6
   )):A=0
YR 2210 FOR X=0 TO DC-1:COLOR A:PLOT X,X:
   DRAWTO DC-X,X:DRAWTO DC-X,DR-X:DRAWTO
   X,DR-X:DRAWTO X,X
SD 2220 A=A+1:IF A=VAR THEN A=0
MU 2230 NEXT X:RETURN
FF 5020 DATA 8,4,8,6,8,8,8,10,8,12,8,14,8
   ,16
BT 5030 DATA 29,4,21,6,22,8,20,10,22,12,2
   1,14,0,18
MS 5040 DATA 1,20,21,32,33,38,39,41,42,54
   ,55,65,66,95
TB 31000 BGN=152:POKE 106,BGN-8:GRAPHICS
   0
DI 31010 DIM MS$(120),CRY$(6)
UR 31020 DMA=PEEK(559):POKE 559,0
TA 31030 OPEN #1,4,0,"D:SMOOTHY.DAT":POKE
    850,7:POKE 852,0:POKE 853,152:POKE 85
   6,244:POKE 857,3
YY 31040 Q=USR(ADR("hhh LV "),16):CLOSE #
   1
LS 31045 RETURN :REM END OF INIT. ROUTINE

NB 31500 REM MS$="MR.SMOOTHY * SMOOTH SCR
   OLLING TEXT WINDOWS IN ALL MAP MODES.
   BY KEN KAYE":MODE=7
WX 31510 REM SPEED=10:COL=0:ROW=44:WLEN=4
   0:COLR=4:POKE 559,DMA:CRY$=STR$(11)
RT 31520 REM GRAPHICS 7+16:COLOR 2:PLOT 0
   ,0:DRAWTO 159,95:DRAWTO 159,0:DRAWTO 0
   ,95:DRAWTO 0,0
LF 31530 Q=USR(38912,ADR(MS$),SPEED,LEN(M
   S$),COL,ROW,WLEN,COLR)
DH 31540 IF Q<>0 THEN GRAPHICS 0:? "USR E
   RROR#";Q
EK 31550 RETURN
```

LISTING 2

```
EF 10 REM SMOOTHY, LISTING 2
PK 20 REM BY KENNETH KAYE
FJ 30 REM (c) 1985,1987 ANTIC PUBLISHING
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
LS 70 FN$="D:SMOOTHY.DAT":REM THIS IS THE
    NAME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?";:POKE 764,25
   5
PY 90 IF NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "      AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
EV 1000 DATA 1012
WU 1010 DATA 1042010072400061701690010760
   92153104133213104133212104104141027156
   104104201121144007162004169
TR 1020 DATA 0020760921531412461551041041
   41248155104104141247155104104201041144
   007162001169003076092153141
OY 1030 DATA 2491551041042010051440071620
   00169004076092153141251155160000162000
   173244002133208169000133207
PG 1040 DATA 1772122011281440071620001690
   05076092153201032176006024105064076123
   152201096176003056233032142
IR 1050 DATA 2501551702240002400161652070
   24105008133207165208105000133208202208
   240174250155230207208002230
EL 1060 DATA 2081652071570331562321652081
   57033156232200204246155240003076084152
   165088133212165089133213165
WV 1070 DATA 0871681851801552080071620001
   69006076092153141252155041254141250155
   173247155240025162000238247
TK 1080 DATA 1551652120241092501551332121
   65213105000133213232236247155208236165
   212024109248155133212133203
```

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```
RR 1090 DATA 1652131050001332131332041722
   49155140024156173250155024109250155109
   250155109250155109250155109
DO 1100 DATA 2501551410301562062491551690
   01133205169158133206162008172249155177
   212145205169000145212136016
AI 1110 DATA 2452022400521652120241092501
   55133212165213105000133213165205024109
   024156133205165206105000133
OU 1120 DATA 2061722491550760441531682240
   00240005104104202208251169000133213152
   133212096169001141244155173
UW 1130 DATA 2521550562372501551412531551
   65203024109250155133203165204105000133
   204076166153173244155208016
GR 1140 DATA 1600001850171571452032002040
   30156208245238244155076098228173034002
   141031156173035002141032156
IZ 1150 DATA 1601421621531690060320922281
   60000177203153017157200204030156208245
   169017133212141254155169157
GL 1160 DATA 1332131412551551620051600021
   65212024109250155133212153254155200165
   213105000133213153254155200
MK 1170 DATA 2022082311690331332121691561
   33213169000141026156141028156141029156
   141010156173253155208010169
RP 1180 DATA 0031412511551690001410281561
   73251155201004208008169001141251155141
   028156206251155173251155240
MA 1190 DATA 0112010012080051690160760581
   5416903214125115516000177212133207200
   177212133208160000162011177
GH 1200 DATA 2071400231561412481550410150
   24109251155168185196155157011156202173
   248155041240074074074074024
AW 1210 DATA 1092511551681851961551570111
   56172023156202200192006208205162011160
   000140245155140025156185254
IN 1220 DATA 1551332142001400231561852541
   55133215024189011156042157011156202189
   011156042157011156172249155
PA 1230 DATA 1772140421452141360162481722
   45155192001208003076195154232238245155
   076152154238023156160000140
XE 1240 DATA 2451551720231562022380251561
   73025156201006208176169000141244155173
   244155240251173027156240011
AZ 1250 DATA 1720271561622552022082531362
   08248238026156173026156201008208130238
   010156160000140026156162011
NO 1260 DATA 1730291562080621730101562052
   46155208003076074155173028156240030173
   251155208008169016141251155
SR 1270 DATA 0760581552010162080081690321
   41251155076058155169000141251155165212
   024105002133212165213105000
ZJ 1280 DATA 1332130760611541730291562050
   24156016009238029156238029156076127154
   169001133205169158133206165
CJ 1290 DATA 2030562372501551332031652042
   33000133204162000160000177205145203200
   204024156208246165205024109
PR 1300 DATA 0241561332051652061050001332
   06165203024109250155133203165204105000
   133204160000232224008208211
ZB 1310 DATA 1690061740321561720311560320
   92228169000133212133213096000000000011
   010021020041040041041041000
SH 1320 DATA 0000200410000010040050160170
   200210640650680690800081084085000002008
   010032034040042128130136138
JI 1330 DATA 1601621681700000030120150480
   51060063192195204207240243252255
```

losin' those MCMXXIV blues

ROMAN NUMERAL TRANSLATOR

Article on page 33

LISTING 1

Don't type the TYPO II Codes!

```
RP 2 REM ROMAN NUMERAL CONVERTER
MR 4 REM BY DAVID STONE
GI 6 REM (c) 1987, ANTIC PUBLISHING
HG 10 DIM ORIG$(20),ROMAN$(20),WORK$(20),
   CHAR$(1),F9$(2),F5$(1),F4$(2),F1$(1)
IC 20 GRAPHICS 0:POKE 710,12:POKE 712,12:
   POKE 709,12:GOTO 500
OO 50 ROMAN$(LEN(ROMAN$)+1)=WORK$:N=N-M*F
   :X=INT(N/F):RETURN
SK 100 ROMAN$=ORIG$:ARABIC=0:DONE=0:RESTO
   RE 600:FOR CHAR=1 TO 7:READ CHAR$,HIVA
   L,LOVAL
TK 110 FOR N=LEN(ORIG$) TO 1 STEP -1:IF O
   RIG$(N,N)<>CHAR$ THEN 160
LQ 120 IF N=LEN(ORIG$) THEN DONE=1
CG 130 WORK$=ORIG$(1,N):IF N<LEN(ORIG$) T
   HEN ORIG$=ORIG$(N+1):N=LEN(ORIG$)
DL 140 FOR M=1 TO LEN(WORK$):IF WORK$(M,M
   )<>CHAR$ THEN ARABIC=ARABIC+HIVAL-LOVA
   L:POP :GOTO 160
HM 150 ARABIC=ARABIC+HIVAL:NEXT M
XZ 160 IF DONE THEN POP :GOTO 180
ID 170 NEXT N
SD 180 NEXT CHAR:RETURN
CK 200 N=VAL(ORIG$):ARABIC=N:ROMAN$="":RE
   STORE 610
AS 210 N=N-1000:IF N>=0 THEN ROMAN$(LEN(R
   OMAN$)+1)="M":GOTO 210
ZE 220 N=N+1000:F=1000
IU 230 F=F/10:READ F9$,F5$,F4$,F1$:X=INT(
   N/F):M=X
WC 240 IF X=9 THEN WORK$=F9$:GOSUB 50:GOT
   O 280
VK 250 IF X>=5 THEN WORK$=F5$:M=5:GOSUB 5
   0:GOTO 270
PS 260 IF X=4 THEN WORK$=F4$:GOSUB 50:GOT
   O 280
LK 270 IF X>=1 THEN WORK$=F1$:M=1:GOSUB 5
   0:GOTO 270
UP 280 IF F>1 THEN 230
ZQ 290 RETURN
GJ 500 TRAP 500:? "■":POKE 752,0:POSITION
    1,9:? "Numeral to convert: ?";:GOSUB
   590
NV 505 INPUT #16;ORIG$:POKE 752,1:? :GOSU
   B 580
ND 507 ON (ASC(ORIG$)<65)+1 GOSUB 100,200
TU 510 ? "■":POSITION 1,7:? "┌────────────
   ──────────────────────────┐"
AU 511 POSITION 1,8:? "│ Roman  │  ";ROMA
   N$
FA 512 POSITION 1,9:? "├─────────┼──────────
   ───────────────────┤"
LQ 513 POSITION 1,10:? "│ Arabic │  ";ARA
   BIC
MF 514 POSITION 1,11:? "└─────────┴──────────
   ───────────────────┘"
AC 515 POSITION 37,8:? "│":POSITION 37,10
   :? "│":POKE 752,1
IF 516 POSITION 5,22:? "(Press any key to
    continue)";:POKE 764,255:GOSUB 590
DY 520 IF PEEK(764)=255 THEN 520
QD 530 POKE 764,255:GOSUB 580:? "■":GOTO
   500
ZW 580 FOR Q=0 TO 12:POKE 709,Q:NEXT Q:RE
   TURN
ZY 590 FOR Q=12 TO 0 STEP -0.5:POKE 709,Q
   :NEXT Q:RETURN
KB 600 DATA M,1000,100,D,500,100,C,100,10
   ,L,50,10,X,10,1,V,5,1,I,1,1
PY 610 DATA CM,D,CD,C,XC,L,XL,X,IX,V,IV,I
```

ST RESOURCE

Maze Master

Article on page 41

LISTING 1

Checksum for file: maze.bas

```
100    ' MAZE MASTER
140    ' BY STEPHEN EVERMAN & PAUL PRATT
180    ' (c)1987, ANTIC PUBLISHING INC.
190    VIDEORAM=PEEK(1102)*65536+ABS(PEEK(1104))
195    A$= CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)
197    A=VARPTR(A$):A1=INT(A/65536):A2=A-(A1*65536)'used in copyform as pointer
210    CO=1:OFF=0:OON=1:NUM=1:MZON=OFF
220    FULLW 2:CLEARW 2:HANDLE=2:A#=GB:CONTROL=PEEK(A#)
240    GINTOUT=PEEK(A#+12):GINTIN=PEEK(A#+8)
260    RANDOMIZE 0:DIM MZ%(31,31),BK%(700,2),KOL%(16),BK2%(400,2)
280    RESTORE 5780:GOSUB KOLOR
285    GOTOXY 5,15:? CHR$(189);" 1987  PRATT & EVERMAN";CHR$(7);
320    COLOR 2,0,0,0:FOR X=0 TO 30:GOSUB POLYLINE:NEXT 'hide output box
340    RESTORE 5700:GOSUB PRSTRING
360    COLOR 2:GOTOXY 49,10:?"W      E":GOTOXY 52,9:?"N":GOTOXY 52,11:?"S"
380    COLOR 1:GOTOXY 48,13:?"TRACE  ON":GOTOXY 52,10
400    GOTOXY 38,15:?"MAKE    SHOW    PATH    RSET    QUIT"
420    COLOR 1,1,1,9:RESTORE 6780
440    FOR X=0 TO 3:READ A,B,C,D:LINEF A,B,C,D:NEXT
460    COLOR 1,3,3:FOR X=0 TO 27:READ A,B,C,D:LINEF A,B,C,D:NEXT
480    FILL 462,93
500    GOSUB DISPLAY.MAN 'poke top man into video ram
520    GOTOXY 5,15:?"WELCOME TO MAZE MASTER      ";:COLOR 2:? CHR$(3)
540    COLOR 1:GOTOXY 6,16:?"PLEASE CLICK ON MAKE"
560    MAIN:'*********************************************
580    WHILE FINI=OFF
600    GOSUB RAT:TI=TI+1
620    IF ABS(PEEK(1212))> 198 THEN POKE 1212,1 :S=S+1:IF S=60 THEN S=0:M=M+1
640    IF TIM=OON AND TI>20 THEN COLOR 3:GOTOXY 4,16:?" TIME:";S;"SEC ";M;"MIN "
 :GOSUB SHOW:TI=0
660    IF MOU=1 AND  NOT(MX>436 AND MX<506 AND MY>102 AND MY<132) THEN GOSUB MAIN
2
680    IF MX>434 AND MX<461 AND MY>111 AND MY<121 AND MOU=1 THEN GOSUB MOV.W
700    IF MX>461 AND MX<484 AND MY>102 AND MY<111 AND MOU=1 THEN GOSUB MOV.N
720    IF MX>483 AND MX<506 AND MY>112 AND MY<121 AND MOU=1 THEN GOSUB MOV.E
740    IF MX>460 AND MX<489 AND MY>122 AND MY<132 AND MOU=1 THEN GOSUB MOV.S
760    'GOTOXY 4,15:? MX,MY:GOSUB SHOW
780    WEND:END '*********************************************
800    MAIN2: '****** used to unclutter main and speed up room movement
820    IF MX>497 AND MX<552 AND MY>154 AND MY<169 AND MOU=1 AND MZON=OON THEN GOS
UB RE.SET:COL=SCOL:ROW=SROW:GOSUB OUTPUT:NMOVE=0:S=-1:M=0:TI=33
840    IF MOU=1 AND F1=1 AND MY>154 AND MY<169 AND MX>331 AND MX<387 THEN GOSUB
 MAKE.MAZE
860    IF MOU=1 AND MY>154 AND MY<169 AND MX>387 AND MX<440 AND MZON=OON AND F1=1
 THEN GOSUB ANSW
880    IF MOU=1 AND MY>154 AND MY<169 AND MX>441 AND MX<497 AND MZON=OON AND F1=1
 THEN GOSUB PATH
900    IF MOU=1 AND F1=1 AND MY>137 AND MY<150 AND MX>410 AND MX<530 THEN COLOR 1
: GOSUB TRAC
920    IF MOU=1 AND MY>154 AND MY<170 AND MX>553 AND MX<670 THEN COLOR 1:FINI=OON
940    RETURN  '*******************************
960    COPY:'**********
980    X1=278:Y1=96:X2=404:Y2=150:OFX=130:OFY=-65
1000   GOSUB VRO.COPYFORM 'copy empty screen over man
1020   RETURN
1040   MOV.W:'************
1060   IF (MZ%(COL,ROW-1)AND 2)<>2 OR MZON=OFF  THEN RETURN
1100   GOSUB COPY:ROW=ROW-1:GOSUB OUTPUT
1120   X1=300:Y1=0:X2=332:Y2=18:OFX=208:OFY=50
1140   GOSUB VRO.COPYFORM 'copy top man down into direction window
1160   RETURN
1180   MOV.E:'************
1200   IF (MZ%(COL,ROW+1)AND 8)<>8 OR MZON=OFF  THEN RETURN
1240   GOSUB COPY:ROW=ROW+1:GOSUB OUTPUT
1260   X1=300:Y1=0:X2=332:Y2=18:OFX=112:OFY=50:GOSUB VRO.COPYFORM
1300   RETURN
1320   MOV.N:'************
1340   IF (MZ%(COL-1,ROW)AND 4)<>4 OR MZON=OFF THEN RETURN
1380   GOSUB COPY:COL=COL-1:GOSUB OUTPUT
```

```
100 :0380
140 :085F
180 :07E5
190 :0A29
195 :07CA
197 :1493
210 :08D7
220 :0CA5
240 :09E2
260 :0CFC
280 :06D3
285 :0CD3
320 :11A0
340 :07BA
360 :0EE5
380 :0B4C
400 :0A45
420 :0698
440 :0AAD
460 :0D8D
480 :02F7
500 :0EAB
520 :0DD1
540 :0ACE
560 :09D7
580 :0454
600 :050A
620 :0F7F
640 :1550
660 :1109
680 :0FE5
700 :0FD9
720 :0FD3
740 :0FEB
760 :085F
780 :0ABB
800 :14BC
820 :21DF
840 :12B3
860 :14B6
880 :14AF
900 :1336
920 :1133
940 :07BA
960 :03DF
980 :0A9E
1000 :0F5E
1020 :02A3
1040 :0495
1060 :0CE1
1100 :09ED
1120 :0A1A
1140 :1416
1160 :02A8
1180 :0488
1200 :0CE7
1240 :09F0
1260 :0F67
1300 :02A4
1320 :048D
1340 :0CE6
1380 :09C3
```

continued on next page

```
1400  X1=300:Y1=0:X2=332:Y2=18:OFX=160:OFY=68:GOSUB VRO.COPYFORM
1440  RETURN
1460  MOV.S:'************
1480  IF (MZ%(COL+1,ROW)AND 1)<>1 OR MZON=OFF THEN RETURN
1520  GOSUB COPY:COL=COL+1:GOSUB OUTPUT
1540  X1=300:Y1=0:X2=332:Y2=18:OFX=160:OFY=32:GOSUB VRO.COPYFORM
1580  RETURN
1600  MAKE.MAZE: '***************
1620  GOSUB COPY:GOSUB CLEAN:GOSUB RE.SET:GOSUB GETSIZE:MZON=OON:GOSUB WORK
1660  FOR X=0 TO 31:FOR Y=0 TO 31:MZ%(X,Y)=16:NEXT:NEXT'out of bounds detector
1680  ROW=INT(RND*WID)+1:COL=1:SROW=ROW:SCOL=COL ' maze entrance
1700  BK%(NUM,1)=COL:BK%(NUM,2)=ROW 'bk% used as map of direct way through maze
1720  FOR X=1 TO HEI:FOR Y=1 TO WID:MZ%(X,Y)=0:NEXT:NEXT' clean out array
1740  MZ%(COL,ROW)=1'open entrance top wall
1760  WHILE COL<HEI'   loop one. find single way through maze array
1780  GOSUB DIRECT 'pick random direction
1820  BK%(NUM,1)=COL:BK%(NUM,2)=ROW
1840  IF MZ%(COL-1,ROW)<>0 AND MZ%(COL+1,ROW)<>0 AND MZ%(COL,ROW-1)<>0 AND
  MZ%(COL,ROW+1)<>0 THEN GOSUB RETRACE 'if traped back up & find new path
1860  WEND '     end loop one. now single path through maze contained in bk%
1880  ' ecol & erow = maze exit:opnum= optimum # of moves from start to exit
1900  ECOL=COL:EROW=ROW:TNUM=0:OPNUM=NUM:QN=NUM-1
1920  MZ%(COL,ROW)=MZ%(COL,ROW)+4' open botton wall of exit
1922  '
1925  '  fill in all open space with dead end hallways
1930  WHILE TNUM<QN:TNUM=TNUM+1'move down main path looking for open areas
1940  COL=BK%(TNUM,1):ROW=BK%(TNUM,2):NUM=1:GOTOXY 2,15:? CHR$(7)
1945  ONCE=1 'used to prime while loops so done at least once
1950  '
1955  WHILE NUM>1 OR ONCE=1
1960  WHILE MZ%(COL-1,ROW)=0 OR MZ%(COL+1,ROW)=0 OR MZ%(COL,ROW-1)=0 OR MZ%(COL,
ROW+1)=0 ' keep filling untel dead end   ' 2
1970  GOSUB DIRECT:BK2%(NUM,1)=COL:BK2%(NUM,2)=ROW
1980  WEND 'reached dead end. back up again looking for openings
2300  WHILE NUM>1 AND (MZ%(COL-1,ROW)<>0 AND MZ%(COL+1,ROW)<>0 AND
   MZ%(COL,ROW-1)<>0 AND MZ%(COL,ROW+1)<>0)
2310  NUM=NUM-1:COL=BK2%(NUM,1):ROW=BK2%(NUM,2)
2340  WEND:ONCE=0
2350  WEND
2360  WEND
2380  '
2480  COL=SCOL:ROW=SROW'reset array to entrance
2500  GOSUB OUTPUT:GOSUB CLEAN
2520  TIM=OON:S=0:M=0:NMOVE=0
2540  X1=300:Y1=0:X2=322:Y2=18:OFX=162:OFY=34
2560  GOSUB VRO.COPYFORM:RETURN 'copy man from above into box
2580  DIRECT: '******************************************
2600  ON INT(RND*16)+1 GOSUB RIS,FALL,LFT,RHT,LFT,RHT,LFT,RHT,RIS,RIS,RHT,LFT,RI
S,RIS,FALL,RIS
2620  RETURN
2640  LFT:'********
2660  IF ROW<=0 OR MZ%(COL,ROW-1)<> 0 THEN RETURN
2680  MZ%(COL,ROW)=MZ%(COL,ROW)+8:ROW=ROW-1:NUM=NUM+1
2700  MZ%(COL,ROW)=MZ%(COL,ROW)+2
2720  RETURN
2740  RHT:'*********
2760  IF ROW>=WID OR MZ%(COL,ROW+1)<> 0 THEN RETURN
2780  MZ%(COL,ROW)=MZ%(COL,ROW)+2:ROW=ROW+1:NUM=NUM+1
2800  MZ%(COL,ROW)=MZ%(COL,ROW)+8
2820  RETURN
2840  FALL:'********
2860  IF COL>=HEI OR MZ%(COL+1,ROW)<> 0 THEN RETURN
2880  MZ%(COL,ROW)=MZ%(COL,ROW)+4:COL=COL+1:NUM=NUM+1
2900  MZ%(COL,ROW)=MZ%(COL,ROW)+1
2920  RETURN
2940  RIS:'********
2960  IF COL<=1 OR MZ%(COL-1,ROW)<> 0 THEN RETURN
2980  MZ%(COL,ROW)=MZ%(COL,ROW)+1:COL=COL-1:NUM=NUM+1
3000  MZ%(COL,ROW)=MZ%(COL,ROW)+4
3020  RETURN
3040  RETRACE:'**********
3060  GOTOXY 44,2:? CHR$(7)
3080  NUM=NUM+1:'FX=0
3100  WHILE MZ%(COL+1,ROW)<>0' while space below isn't empty
3120  NUM=NUM-1
3140  COL=BK%(NUM,1):ROW=BK%(NUM,2) 'back up one step
3160  WEND
3180  RETURN
3200  GETSIZE:'******************
3210  GOSUB CLEAN:COLOR 1
3220  GOTOXY 0,15:? " WITH POINTER IN BOX ";:COLOR 2:? CHR$(1);
3230  COLOR  1:?" HOLD BUTTON"
3240  GOTOXY 2,16:?"AND PULL TO DESIRED MAZE SIZE";
3260  GOSUB RAT
```

```
1400 :0F6F
1440 :02A9
1460 :0497
1480 :0CE3
1520 :09BD
1540 :0F6B
1580 :02AE
1600 :0617
1620 :1385
1660 :1471
1680 :1178
1700 :161E
1720 :1293
1740 :0C85
1760 :13C9
1780 :0C1B
1820 :07F6
1840 :20C9
1860 :1634
1880 :1774
1900 :0CF9
1920 :1054
1922 :00F5
1925 :1053
1930 :16A0
1940 :0F23
1945 :129F
1950 :00F6
1955 :05E0
1960 :1DC7
1970 :0BD5
1980 :13F9
2300 :17D2
2310 :0B0A
2340 :03C3
2350 :01F8
2360 :01F9
2380 :00F4
2480 :0E70
2500 :0755
2520 :06F6
2540 :0A21
2560 :11DD
2580 :0A23
2600 :17A8
2620 :02AA
2640 :0363
2660 :0AD5
2680 :0D26
2700 :07A1
2720 :02AB
2740 :0396
2760 :0B8A
2780 :0D1F
2800 :07A8
2820 :02AC
2840 :039E
2860 :0B63
2880 :0CEE
2900 :07A2
2920 :02AD
2940 :036E
2960 :0ABF
2980 :0CEE
3000 :079D
3020 :02A5
3040 :04D2
3060 :057B
3080 :04B0
3100 :10DB
3120 :0341
3140 :0D8E
3160 :01F8
3180 :02AC
3200 :065F
3210 :0593
3220 :0D6A
3230 :0638
3240 :0B8B
3260 :0332
```

```
3280  WHILE MOU<>1 OR F1=0:GOSUB RAT:WEND:GOSUB CLEAN
3300  WHILE MOU<>2
3320  GOSUB RAT
3340  IF MOU=1 AND MY>23 THEN GOSUB RUBBERBOX:GOSUB CLEAN
3360  WID=INT(PEEK(GINTOUT+2)/8):HEI=INT(PEEK(GINTOUT+4)/4)
3370  IF WID<3 THEN WID=3
3380  IF HEI<3 THEN HEI=3
3400  IF WID>30 THEN WID=30
3420  IF HEI>30 THEN HEI=30
3460  GOTOXY 2,15:? WID;"X";HEI;" CLICK MOUSE 2 IF OK"
3480  GOTOXY 4,16:? "OR RESIZE USING MOUSE 1";
3500  MOU=0: WHILE MOU=0:GOSUB RAT:WEND
3520  WEND
3540  CLEAN:'*************
3560  FOR X=15 TO 16
3580  GOTOXY 0,X:?"                                                  ":NEXT
3600  RETURN
3604  WORK:'********
3606  GOSUB CLEAN:COLOR 2:GOTOXY 8,16:?"W O R K I N G";:RETURN
3620  PATH: '***********
3640  GOTOXY 5,15:? CHR$(7):CL=SCOL:RW=SROW:PX=RW*8+12:PY=CL*4+6
3680  FOR X=1 TO OPNUM:CL=BK%(X,1):RW=BK%(X,2):OPX=PX:OPY=PY
3740  PX=RW*8+12:PY=CL*4+6:COLOR 1,0,2:LINEF OPX,OPY,PX,PY
3760  NEXT:RETURN
3780  TRAC: '***********
3800  IF CO=1 THEN CO=0:GOTOXY 54,13:?"OFF";CHR$(7):RETURN
3820  IF CO=0 THEN CO=1:GOTOXY 54,13:?"ON ";CHR$(7):RETURN
3840  OUTPUT:'***********************
3880  GOTOXY 5,15:? CHR$(7);:NMOVE=NMOVE+1:POINTX=ROW*8+12:POINTY=COL*4+6
3900  COLOR 1,0,0:LINEF OPOINTX,OPOINTY,OPOINTX,OPOINTY
3920  OPOINTX=POINTX:OPOINTY=POINTY
3940  COLOR 1,0,CO:LINEF POINTX,POINTY,POINTX,POINTY
3960  '  north door
3980  IF ((MZ%(COL,ROW) AND 1)=1) THEN C=0 ELSE C=1
4000  COLOR 1,0,C,0:LINEF 413,7,528,7
4020  IF CO=1 THEN LINEF ROW*8+8,COL*4+4,ROW*8+16,COL*4+4
4040  '   east door
4060  IF ((MZ%(COL,ROW) AND 2)=2) THEN C=0 ELSE C=1
4080  COLOR 1,0,C,0:LINEF 538,12,538,62
4100  IF CO=1 THEN LINEF ROW*8+16,COL*4+5-C,ROW*8+16,COL*4+7+C
4120  '  south door
4140  IF ((MZ%(COL,ROW) AND 4)=4) THEN C=0 ELSE C=1
4160  COLOR 1,0,C,0:LINEF 413,67,528,67
4180  IF CO=1 THEN LINEF ROW*8+8,COL*4+8,ROW*8+15+C,COL*4+8
4200  '   west door
4220  IF ((MZ%(COL,ROW) AND 8)=8) THEN C=0 ELSE C=1
4240  COLOR 1,0,C,0:LINEF 403,12,403,62
4260  IF CO=1 THEN LINEF ROW*8+8,COL*4+5-C,ROW*8+8,COL*4+7+C
4280  IF COL=ECOL AND ROW=EROW AND FSTOP=OFF  THEN GOSUB YOUDIDIT
4300  RETURN
4320  RE.SET:'**************
4340  GOTOXY 2,15:? CHR$(7):GOSUB WORK
4360  FOR Y=0 TO HEI*4+1 ' erase maze map directly from Video ram
4380  FOR X=4644 TO 4704 STEP 4
4400  POKE VIDEORAM+X+Y*160,0 'screen memory plane one
4420  POKE VIDEORAM+2+X+Y*160,0 'screen memory plane two.
4440  NEXT:NEXT:TIM=OON:RETURN
4460  YOUDIDIT:'************
4540  GOSUB CLEAN:RESTORE 6780:FOR X=0 TO 15:GOSUB KOLOR:? CHR$(7);
4560  FOR D=0 TO 100:NEXT:NEXT
4565  COLOR 1:GOTOXY 1,15:?"OPTIMUM # OF MOVES";OPNUM;"YOU'RE #"NMOVE
4570  GOTOXY 3,16:?"YOU'RE TIME WAS";M;"MIN ";S;"SEC"
4580  RESTORE 5780:GOSUB KOLOR:TIM=OFF:RETURN
4600  ANSW:'************************
4620  GOSUB CLEAN:GOTOXY 2,15:?"MOUSE BUTTON 1 FOR SCREEN"
4640  GOTOXY 2,16:?"MOUSE BUTTON 2 FOR PRINTER":GOSUB RAT
4660  WHILE (MOU<>1 AND MOU<>2) OR F1=0:GOSUB RAT:WEND
4680  IF MOU=1 THEN GOSUB ANSW2SCR
4700  IF MOU=2 THEN GOSUB ANSW2PTR
4720  GOSUB CLEAN:RETURN
4740  ANSW2PTR:'********
4760  GOSUB CLEAN:GOTOXY 6,15:?"PLEASE TURN ON PRINTER"
4780  GOTOXY 3,16:?"AND CLICK EITHER MOUSE BUTTON"
4800  GOSUB RAT:WHILE MOU=0 OR F1=0:GOSUB RAT:WEND
4820  ' Subroutine for Epson-compatible printers
4860  ESC=27           'escape key
4880  COMPRES=15        'compressed character mode
4900  SUB=83           'subscript mode
4920  LSPC=51          'set line spacing
4940  N216=14        '# of line spacings of 12/216" each
4960  LPRINT CHR$(COMPRS):LPRINT CHR$(ESC);CHR$(SUB)
4980  LPRINT CHR$(ESC);CHR$(LSPC);CHR$(N216);:LPRINT
5000  FOR COL=1 TO HEI:A$="-":B$="I":FOR ROW=1 TO WID
5020  IF ((MZ%(COL,ROW) AND 1)=1) THEN A$=A$+" -" ELSE A$=A$+"--"
```

```
3280 :0C8D
3300 :03DC
3320 :032F
3340 :0D4B
3360 :0E78
3370 :0532
3380 :0517
3400 :058E
3420 :0574
3460 :0B89
3480 :0A2B
3500 :0940
3520 :01F8
3540 :04B2
3560 :03BA
3580 :05A4
3600 :02A9
3604 :03C1
3606 :0DBF
3620 :0451
3640 :0F48
3680 :0E75
3740 :0DCA
3760 :0429
3780 :0455
3800 :0D1B
3820 :0CDF
3840 :073B
3880 :11D6
3900 :0E26
3920 :09AA
3940 :0D50
3960 :04D8
3980 :0A4F
4000 :076C
4020 :0C55
4040 :0450
4060 :0A47
4080 :07DA
4100 :0D65
4120 :04D5
4140 :0A4A
4160 :07DF
4180 :0CD1
4200 :0464
4220 :0A51
4240 :07C6
4260 :0D0E
4280 :0F71
4300 :02A7
4320 :0527
4340 :0878
4360 :121A
4380 :05FF
4400 :0F04
4420 :0FA9
4440 :07EB
4460 :0592
4540 :0F50
4560 :068D
4565 :1041
4570 :0BE5
4580 :0B60
4600 :0654
4620 :0D91
4640 :0D7D
4660 :0C34
4680 :07C2
4700 :07CA
4720 :05CA
4740 :04E1
4760 :0D21
4780 :0B9F
4800 :0BD2
4820 :1035
4860 :0634
4880 :0D3E
4900 :080A
4920 :08A4
4940 :0C2C
4960 :0C89
4980 :0C5C
5000 :0B36
5020 :0C54
```

continued on next page

```
5040  IF ((MZ%(COL,ROW) AND 2)=2) THEN B$=B$+"   " ELSE B$=B$+" I"
5060  NEXT:LPRINT A$:LPRINT B$:NEXT
5080  A$="-":COL=HEI:FOR ROW=1 TO WID
5100  IF ((MZ%(COL,ROW) AND 4)=4) THEN A$=A$+" -" ELSE A$=A$+"--"
5120  NEXT: LPRINT A$
5140  RETURN
5160  ANSW2SCR:'********
5180  ACOL=COL:COL=SCOL:AROW=ROW:ROW=SROW
5200  COLOR 1,1,1:FOR C=1 TO HEI:FOR R=1 TO WID:'GOSUB 3520:NEXT:NEXT
5220  IF ((MZ%(C,R) AND 1)<>1) THEN LINEF R*8+8,C*4+4,R*8+16,C*4+4
5240  IF ((MZ%(C,R) AND 2)<>2) THEN LINEF R*8+16,C*4+5,R*8+16,C*4+8
5260  IF ((MZ%(C,R) AND 4)<>4) THEN LINEF R*8+8,C*4+8,R*8+16,C*4+8
5280  IF ((MZ%(C,R) AND 8)<>8) THEN LINEF R*8+8,C*4+5,R*8+8,C*4+8
5300  NEXT:NEXT
5320  COL=ACOL:ROW=AROW:FSTOP=OON:GOSUB OUTPUT:FSTOP=OFF
5340  RETURN
5360  ' %%%%%%%%%%%%%%%%  VDI  &  GEM  %%%%%%%%%%%%%%%%%%%%%
5380  RAT:'***
5400  GINTOUT=PEEK(A#+12):GEMSYS(79)
5420  MX=PEEK(GINTOUT+2):MY=PEEK(GINTOUT+4):MOU=PEEK(GINTOUT+6)
5440  IF OLDMOU<>MOU THEN F1=1 ELSE F1=0 'stops fall-through of mouse button
5460  OLDMOU=MOU:RETURN
5480  POLYLINE:'****** cover basic output window in background color
5500  POKE CONTRL,6:POKE CONTRL+2,6:POKE CONTRL+4,0:POKE CONTRL+12,HANDLE
5520  POKE PTSIN,0+X:POKE PTSIN+2,0+X:POKE PTSIN+4,639-X:POKE PTSIN+6,0+X
5540  POKE PTSIN+8,639-X:POKE PTSIN+10,199-X:POKE PTSIN+12,0+X
5560  POKE PTSIN+14,199-X:POKE PTSIN+16,0+X:POKE PTSIN+18,0+X
5580  VDISYS(0):RETURN
5600  PRSTRING:' **** print outside output window ************
5620  READ ST,XST,YST
5640  POKE CONTRL,8:POKE CONTRL+2,1:POKE CONTRL+6,ST:POKE CONTRL+12,HANDLE
5660  FOR X=0 TO ST*2-1 STEP 2:READ CH:POKE INTIN+X,CH:NEXT
5680  POKE PTSIN,XST:POKE PTSIN+2,YST:VDISYS(0):RETURN
5700  DATA 28,210,13,77,0,65,0,90,0,69,0,0,0,0,0,0,0,0,0
5720  DATA 77,0,65,0,83,0,84,0,69,0,82
5740  KOLOR:'*********************
5760  FOR A=0 TO 3:READ B:KOL%(A)=B:NEXT
5780  DATA 33,1808,85,1907
5800  DEFDBL K:K = 1114:POKE K,VARPTR(KOL%(0))
5820  RETURN
5840  SHOW:'**********
5860  POKE CONTRL,122:POKE CONTRL+2,0:POKE CONTRL+6,1
5900  POKE CONTRL+12,HANDLE:POKE INTIN,0
5940  VDISYS(0):RETURN
6120  RUBBERBOX: '***************
6140  COLOR 1,1,1
6160  POKE CONTRL,70:POKE CONTRL+2,4:POKE CONTRL+4,3:POKE CONTRL+6,0
6180  POKE CONTRL+8,0:POKE CONTRL+12,2
6200  POKE GINTIN,16:POKE GINTIN+2,29:POKE GINTIN+4,30:POKE GINTIN+6,15
6220  GEMSYS(70)
6240  RETURN
6260  DISPLAY.MAN:'*****
6280  VIDRAM=VIDEORAM+236:RESTORE 6380
6300  FOR Y=0 TO 15:READ A,B
6320  POKE VIDRAM+Y*160,A
6340  POKE VIDRAM+2+Y*160,B
6360  NEXT
6380  DATA 1984,0,16376,0,0,4064,12312,1984,15480,896,65278,256,65534,0
6400  DATA 57334,0,57334,0,32764,0,7920,0,7920,0,7920,0,7920,0
6420  DATA 7920,0,16120,0,0
6440  RETURN
6460  VRO.COPYFORM: '*******
6520  POKE CONTRL,109:POKE CONTRL+2,4:POKE CONTRL+6,1:POKE CONTRL+12,HANDLE
6540  POKE CONTRL+14,A1:POKE CONTRL+16,A2:POKE CONTRL+18,A1:POKE CONTRL+20,A2
6560  POKE INTIN,3
6580  POKE PTSIN,X1 ' X TOP SOURSE
6600  POKE PTSIN+2,Y1 ' Y TOP SOURSE
6620  POKE PTSIN+4,X2 ' X BOT SOURSE
6640  POKE PTSIN+6,Y2   ' Y BOT SOURSE
6660  POKE PTSIN+8,X1+OFX'X TOP DESTINATION
6680  POKE PTSIN+10,Y1+OFY 'Y TOP DESTINATION
6700  POKE PTSIN+12,X2+OFX' X BOT DESTINATION
6720  POKE PTSIN+14,Y2+OFY ' Y BOT DESTINATION
6740  VDISYS(0)
6760  RETURN
6780  DATA 393,7,548,7,393,67,548,67,538,2,538,72,403,2,403,72
6800  DATA 393,2,548,2,548,2,548,72,393,72,548,72,393,2,393,72
6820  DATA 4,2,271,2,271,2,271,133,271,133,4,133,4,133,4,2
6840  DATA 330,132,606,132,606,132,606,148,606,148,330,148,330,148,330,132
6860  DATA 386,132,386,148,440,132,440,148,496,132,496,148,552,132,552,148
6880  DATA 410,115,530,115,530,115,530,128,530,128,410,128,410,128,410,115
6900  DATA 435,90,505,90,505,90,505,100,505,100,435,100,435,100,435,90
6920  DATA 460,80,482,80,482,80,482,110,482,110,460,110,460,110,460,80
```

```
5040 :0C1E
5060 :0874
5080 :0819
5100 :0C59
5120 :047F
5140 :02AA
5160 :04D0
5180 :0AF0
5200 :0F81
5220 :0D05
5240 :0D3D
5260 :0D17
5280 :0CEF
5300 :0380
5320 :0F24
5340 :02AC
5360 :0830
5380 :0296
5400 :086B
5420 :102F
5440 :157F
5460 :05E7
5480 :151A
5500 :11BE
5520 :117B
5540 :0E7C
5560 :0E43
5580 :054F
5600 :10B8
5620 :04E7
5640 :1239
5660 :0D6E
5680 :0DF2
5700 :0AAC
5720 :0719
5740 :0654
5760 :08A4
5780 :04E7
5800 :09DE
5820 :02AF
5840 :0417
5860 :0C82
5900 :097C
5940 :054F
6120 :064B
6140 :0335
6160 :104A
6180 :08B6
6200 :10BE
6220 :035A
6240 :02AC
6260 :0521
6280 :091C
6300 :0584
6320 :056F
6340 :05CF
6360 :020E
6380 :0DBA
6400 :0BCA
6420 :04F2
6440 :02AE
6460 :05EB
6520 :1226
6540 :123E
6560 :03E1
6580 :0798
6600 :07F0
6620 :07E5
6640 :07EB
6660 :0A73
6680 :0AA1
6700 :0A8C
6720 :0A93
6740 :0334
6760 :02B3
6780 :0BEF
6800 :0BE8
6820 :0ADA
6840 :0E14
6860 :0E3E
6880 :0E00
6900 :0D3D
6920 :0D47
```

ST New Products

By GREGG PEARLMAN, *Antic Assistant Editor*

MICHTRON UPDATE

If you have a working knowledge of BASIC and want to understand the more complicated aspects of ST programming, **The GFA-BASIC Book** ($39.95) could be just what you're looking for. This intermediate tutorial for the GFA BASIC Interpreter guides you step by step through the intricate facets of BASIC and GEM programming. A disk containing more than 75 programs and files helps you along further. Topics include optimization, graphics, GEMDOS, BIOS, XBIOS and using windows.

And if you need a break from heavy-duty programming *and* you've done all you can with Microdeal's Airball, grab the **Airball Construction Kit** ($24.95), a GEM-based room-design utility. The Menu Bar lets you quickly create, load, save and delete room files as well as position the objects you need in the game (such as crates). The Room Information section lets you edit rooms quickly.

MichTron, 576 S. Telegraph, Pontiac, MI 48053. (313) 334-5700. Both FINAL.

CIRCLE **266** ON READER SERVICE CARD

COMMEDIA DELL' UNIX

Craft, an advanced program development environment, consists of two powerful tools: Craft shell, a general purpose command interpreter that provides a Unix environment, and Craft editor, a fast, complete and versatile editor that works integrally with the Craft shell.

The shell lets you run GEM tasks and features more than 50 built-in commands, input/output redirection, pipes, aliasing, history, command line editing, batch processing facilities, user-definable function keys and a built-in RAMdisk and print spooler.

Written completely in assembly language, the editor has over 100 commands and lets you edit up to 100,000 lines of text. Other features include extremely fast search-and-replace algorithms, 10 editable buffers, almost infinitely nestable folds, optional wordwrap and auto-indent, and editable binary files.

About $180 in Dutch gilders. ComMedia, 1e Looiersdwarsstraat 12, 1016 VM Amsterdam, Netherlands. 020-231740. PRESS.

CIRCLE **269** ON READER SERVICE CARD

SALES & OFFICE HELP

Super Sales-Pro, a full-featured Point-of-Sale and inventory control package, accomodates medium to large wholesale, retail or mail order businesses. The price is not set yet, but it will probably be around $400. **Office-Pro** ($199) is an office management package that provides extensive time scheduling and billing for up to 999 staff members. Office-Pro also has mail merge and includes free technical support, as do all Hi-Tech Advisers software systems.

Hi-Tech Advisers, P.O. Box 7524, Winter Haven, FL 33883-7524. (813) 294-1885 or (813) 293-3986. PRESS.

CIRCLE **265** ON READER SERVICE CARD

BEYOND ZORK

It's Great Underground Empire year 966 and the Age of Magick is ending—plunging the once peaceful region of Quendor into total chaos. The sorcerers will never see magic reign again in the land, but they do have a plan. In **Beyond Zork**, you're the lucky camper who's sent to find—and then hide—the Coconut of Quendor, which holds the essence of the sorcerers' wisdom. You'll have to solve fantastic new puzzles involving wondrous objects and unforgettable characters. Keep your eyes peeled, however, for an insidious monkey grinder and a pair of knights with flaming eyes.

And you'll really *have* to keep your eyes peeled. Beyond Zork sports scrollable windows, graphic status screens and on-screen mapping.

$49.95. Infocom Inc., 125 CambridgePark Drive, Cambridge, MA 02140. (617) 492-6000. FINAL.

CIRCLE **268** ON READER SERVICE CARD

3-D FIRE

Alien Fires—2199 A.D. is a science-fiction role-playing adventure game in which you're a Time Lord who's sent to Galaxy's End, a small planet at the edge of the universe. Your mission is to find the missing Samuel Kurtz and destroy his time machine, which threatens the very fabric of time. Alien Fires features smooth-scrolling, 3-D color graphics, digitized music and sound effects, sophisticated character interaction and an in-depth story. Also, you can define your own characteristics such as fighting ability, diplomacy, dexterity and quickness.

$39.95. Paragon Software Corp., 600 Rugh Street, Greensburg, PA 15601. (412) 838-1166. PRESS.

CIRCLE **267** ON READER SERVICE CARD

ULTIMA AND MOEBIUS

From Broderbund Software comes Origin Systems' **Ultima IV: Quest of the Avatar** and **Moebius: The Orb of Celestial Harmony**. In Ultima IV, you explore Lord British's newest graphics role-playing challenges. Instead of designing the characteristics of your party, *it* takes on *your* characteristics—based on your responses to a series of ethical dilemmas. So don't blow it, the difficulty of your quest is influenced by your own personality. Ultima IV has a complete, original musical score and 16 colors.

Moebius combines Eastern adventure and arcade-style martial arts action with fantasy role-playing. Impeding your progress as you seek the Orb of Celestial Harmony are such inconveniences as hand-to-hand and sword combat with people much bigger than you, as well as tigers and giant beetles. And watch out for typhoons and earthquakes.

$59.95 each. Distributed by Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. (415) 492-3200. Both FINAL.

CIRCLE **270** ON READER SERVICE CARD

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Tech Tips

SINGLE-STEPPING

The following advanced tip comes from a well-known independent Atari software developer who prefers to remain anonymous. This single-step routine works with the version of DDT (Dunion's Debugging Tool) built into the MAC/65 assembler-editor from Optimized Systems Software. Our technical staff was unable to fully test the technique prior to deadline:

Let's say you're using the [OPTION] key to single-step through a program that you're revising, and you reach a code block that includes a tight loop which is executed many times. For example:

```
    LDX #117
LP  LDA BUF,X
    STA OUT,X
    DEX
    BPL LP
    JSR SOMEPLACE
```

Now, you *know* that loop will work okay, but using [OPTION] to go through it will take forever. So instead, use the [OPTION] key to single-step down to the first occurrence of the BPL (or any similar branch instruction). Then press [N]—the loop will execute and the program will stop on the next instruction, ready for an [OPTION].

Normally, N means to skip the Next instruction. DDT executes it by placing a temporary breakpoint on the instruction past the next one and then doing a GO (or START). So with a branch instruction, N puts the break right after the branch. Only when the branch is *not* taken is the break activated.

Caution: *Don't* use this technique on a branch that might never "fall through." Since DDT does a GO, your program may run away too quickly to recover.

HIGH SCORE SAVE

This tip comes from an article by Ian Finlayson in Page 6, Britain's biggest Atari magazine:

BASIC's Forced Read mode lets a program modify itself by automatically writing program lines onscreen and then reading them as if they were typed in manually. Adding this subroutine to a BASIC game lets you save a high score to disk or cassette.

```
31210 TT7=0
31220 HIGHSCORE=TT7:RETURN
31225 REM - - - - - - - - -
31229 REM THIS REWRITES LINE 31210
31230 IF HIGHSCORE<=TT7 THEN RETURN
31240 GRAPHICS 0:? :? :? "31210 TT7=";HIGHSCORE
31250 ? :? :? "CONT"
31260 POSITION 2,0:POKE 842,13:STOP
31270 POKE 842,12:SAVE "D:GAME":RETURN
31280 POKE 842,12:GRAPHICS 0:? :? :? "Rewind tape":? :?
      "Push RECORD and PLAY, then press [RETURN]"
31290 CSAVE :RETURN
```

This is actually two routines in one. The first routine (lines 31210-31220) places the current high score into variables TT7 and HIGHSCORE. The line GOSUB 31210 calls this routine. You only need to call this subroutine once, at the beginning of your program.

During your game, remember that the variable HIGHSCORE refers to the highest score achieved during the *current* game, while the variable TT7 refers to the all-time high score.

Before your game ends, you should update the all-time high score with a GOSUB 31230. This is the second half of the routine. It checks to see if the current high score is greater than the all-time high score. If so, line 31210 is updated with the new all-time high score, and the program is re-SAVEd.

If your program is on cassette, you should remove line 31270. If your program is on disk, put its filename in line 31270.

PROWRITER PATCH

Ervin Zimmerman of Mt. Clemens, Mich., offers the following modification to *Antic Publisher* (December 1987), which allows the program to print on a Prowriter printer. **Antic** doesn't have a Prowriter to verify this tip on.

1. Edit line 12010 as follows:

Find the part of the line which reads:

```
? #1;"␛3▤"
```

and change it to:

```
? #1;"␛T16␛[␛N▖"
```

2. Edit line 32050 as follows:

Find the part of the line which reads:

```
GRAF$(5):GRAF$="␛✱▥◘□"
```

and change it to:

```
GRAF$(6):GRAF$="␛S0640"
```

3. Change the 48th and 51st characters of DUMP$ in line 32130 from "&" (ampersand) to "f" (lowercase f).

WASHINGTON SHUFFLE

Mark Brown of Current Notes, the magazine of the Washington Area Atari Computer Enthusiasts, created this two-line routine that shuffles a set of items. Here, it shuffles upper- and lowercase letters, but what if you were working with playing cards instead?

```
10 DIM C$(52),T$(1):C$="ABCDEFGHIJKLMN
OPQRSTUVWXYZabcdefghijklmnopqrstuvwx
yz":? CHR$(125);"In order:":? C$:? :?
20 FOR A=1 TO 52:B=INT(52*RND(0)+1)
:T$=C$(A,A):C$(A,A)=C$(B,B):C$(B,B)=T$
:NEXT A:? "Shuffled":":? C$
```

If you have a Tech Tip that you would like to share with other readers, send it along to Antic Tech Tips, 544 Second Street, San Francisco, CA 94107. You might get your name in print. We always welcome very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.

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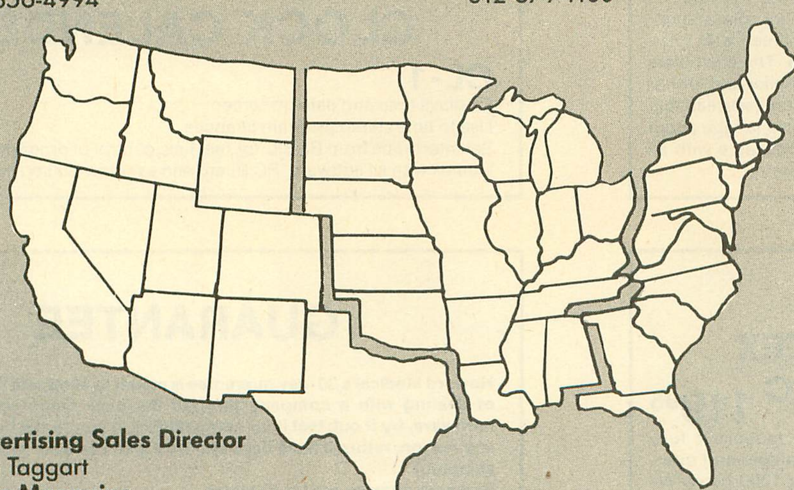
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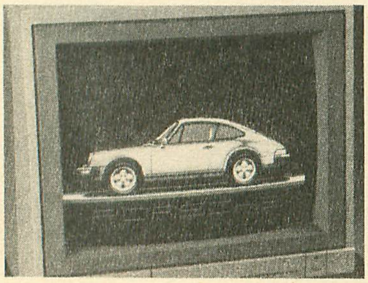
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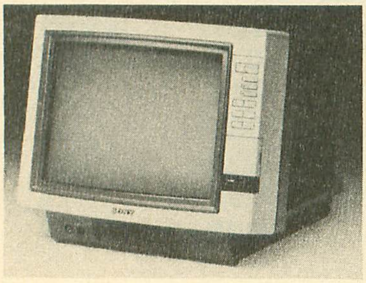
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MONITORS



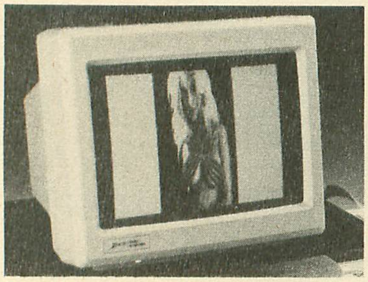
MAGNAVOX
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8CM515 (14 ship) **$298**

3 inputs offer maximum versitility for this 13" color monitor; RGB Analog for the ST; composite for the 800/XL/XE or VCR and RGB TTL for IBM and Clones. The 640 x 240 resolution with .42 MM dot gives vivid colors and a green screen override for 80 column text. ST RGB cable $19.95 with monitor or $29.50 seperate.



SONY
color
KV1311CR (15 ship) **$449**

The Ultimate 13" color monitor includes a trinitron TV with remote control; 640 x 240 resolution with a .37 MM dot and a Micro Black screen that is vertically flat for distortion free viewing. Four inputs includes all of those from the Magnavox 515 plus a digital RGB. The colors are incredably brilliant.

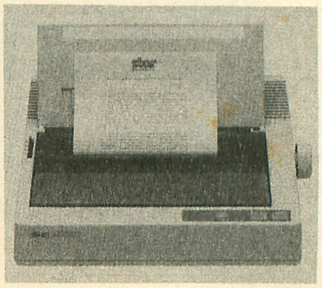


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This new release from Zenith features a 12" non-glare composite Amber screen with 720 x 240 resolution. The characters are slightly smaller and further apart which increases readability and decrease fatigue about 50%. It is compatable with all Atari computers.

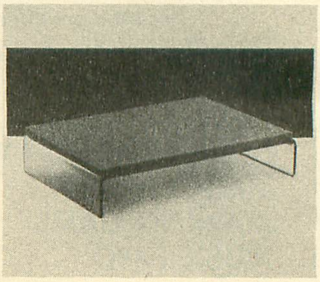
PRINTERS

STAR
NX-10 (7 ship) **$155**



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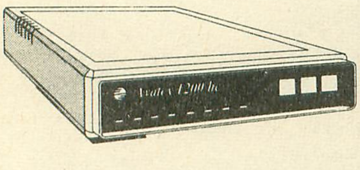
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